MANUAL

OF THE

STATISTICS

OF THE

DISTRICT OF GORUCKPORE,

BY

ALAN SWINTON, ESQ.,

OFFICIATING COMMISSIONER OF GORUCKPORE.

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DISTRICT OF GORUCKPORE.

By Alan Swinton, Esq.,

Officiating Commissioner, Goruckpore.

This district is situated nearly midway in that tract of alluvium which extends for many miles in a parallel direction with the Himalayas. It lies between 27·30 and 25·16 North Latitude, and 82·17 and 84·30 Longitude, and from west to east it extends about 130 miles, and from north to south about 80 miles. It is bounded on the north by the Nepal Terai, on the south by the Gogra, on the south-west and west by Oudh, and on the east Chumparun, Sarun and Chupra. It formed part of the territory called Niaha Kosala, which, according to Hindoo tradition, was founded by Vainvaswata of the Suryabansa family. After the expulsion of this family, the Kasee Rajah took possession of it, and they were driven out by the Siviras, the followers of Gorukhnath. The Goorkhas, after a short occupation, were expelled by the Tharoos, who came from the Hills and occupied all the country to the north of the Gogra; their monuments bear every mark of great antiquity, probably about the seventh century. They were expelled by the Rajpoot Brahmins and Bhurs. For a considerable period previous to the Mahomedan conquest, the Sirneyt Rajpoots obtained complete possession, and the greater part of Kosala was under the Kunouj Dynasty. This territory is said to have been in a flourishing condition during the reign of the Emperor Akber, and to have continued so under the Nawabs of Oudh, until the defeat of Sooja-ood-dowlah at Buxar. But the Chiefs, dwelling in their own Forts, were imperfectly subdued by the Mahomedans, and it was ceded by the Nawab of Oudh to the British Government in 1801, and formerly included Azimgurh, which was separated from it in 1830. A very large portion of the district was uncultivated and covered with forests, and in 1815 arrangements were made to locate a colony of Tharoos, and several thousands held lands in the Sutassee Jungles. On the conclusion of the Pindarch war, a grant of land was bestowed on Kurreem Khan, a celebrated leader of that banditti. His nephew and adopted son and their descendants are now settled at Sikreegunj, in pergunnah Dhooreeaparch; a separate grant was made to Sheikh Kadir Buksh, a follower of Kurreem Khan, and his descendants are at Guneshpore, in pergunnah Nugger. The population and cultivation have rapidly increased; there are now 2,5,00,000 Hindoos and 3,50,000 Mahomedans, and there are only 6,00,000 acres forest in

this district, which contains nearly 7,600 square miles. It is about 350 feet above the level of the sea, and, with the exception of a range of sandhills about 50 feet high, the country is very flat. The soil is alluvial, containing a mixture of clay and sand, and is very productive, but has not much depth, and requires very little irrigation. The climate is hurrid and relaxing, and the changes of temperature are very sudden; goitre prevails in the vicinity of the little Gunduck, and is attributable to the calcareous deposits of that river. The easterly and westerly winds are prevalent. The land between the Gogra and Raptee is much more fertile than the tract north of the Raptee, which contains the main portion of the forest; and between the belts of jungle there are for many miles thousands of acres of good soil, partly under rice cultivation and partly used for grazing. The great drawback is want of labor, and the insalubrity of the climate will rapidly diminish when cultivation increases. There are no minerals, and there is no prospect of getting coal in this district. The average annual fall of rain is about forty inches, and there are fewer thunderstorms than in the Doab. The town of Bootwal, situated at the base of the lower range of the Nepaul mountains, is about 30 miles from Lotun, and there is a good road to it passable during the rains; there is a most eligible site for a sanatarium on the Tansein mountain, at an elevation of six thousand feet, and on its summits is a plateau well wooded and with plenty of water, three miles long and one mile broad; it is about 10 miles distant from Bootwal and accessible at all seasons. The passes between Sidonia Ghât and Bootwal are the Jurwa Pass, situated not far from the Urrah Nuddee, which is the boundary between the British and Nepalese territories. It leads between Nawalgurh and Ghururbeer, and is altogether about 12 miles long; the Budgkayee Pass, the most open of the three, leads up the bed of a torrent and enters the Sonar valley. Its extreme length is about 11 miles and the height of the crest is about 1,000 feet above the plateau and the Koronia Sota Pass, about 13 miles long. It is very winding, and in many places the path is very broken and rocky. The roads in the Northern or Raptee division of the district are not good, and are generally inundated from the overflowing of the numerous mountain streams. Water-carriage is mainly employed for the transport of grain, &c., and there is every facility of making the numerous rivers navigable during all the year by constructing embankments and locks.

An extensive work, consisting of seven bridges and an embankment, across the Ameeyar and Bheureeya Tals near Cowreeram, on the road to Azimgurh, was constructed by Mr. H. C. Tucker. The principal roads are well raised, and communication is never interrupted during the rains.

A list of the chief proprietors is appended. The population, nearly all agricultural, are very quiet. The Tharoos, descended from the Hill tribes, are located on the northern frontier. The Bunturreeas are those who protected the forests and the adjoining country which was made over to the Raoots of Bheetee, by Nuwab Asof-ood-dowlah. The large jungle grants are Lehra, Aleedapore, Newra, Birdpore, Perrowna and Bhysee. The agricultural implements and the mode of cultivating the fields are very defective. Very little manure is used, although it is much required in the old lands. The custom of fallow, under the terms "chaumas" (or tilled for four months during the rainy season) and "pullcehur" prevails all over the district, except in lands recently brought under cultivation, which are regularly sown in autumn and spring crops; and sometimes where the soil is very light, the land is allowed to remain uncultivated for two or three years. All the cereals flourish, and the usual rotation of crops is—chaumas lands are sown in wheat, barley, or rapeseed, next in rice, which is succeeded by barley, "gojee," or wheat and barley mixed, linseed, peas or gram; burrey, which produces the koossoom flower or saffron, is

sown along the borders, and there is a sprinkling of mustard. Rice is the staple crop in the north, much gram is not produced. There is very little cotton, and of inferior description, grown. From recent experiments with American seed on a small scale, it appears that in many parts the soil is well adapted for cotton, and if proper gins for carding it were introduced, it is probable that the natives would cultivate it. There is great facility for transporting it by water carriage to Calcutta. Nearly all the cotton is imported from Bundelkhund by Ghazeepore. Unsuccessful attempts to manufacture sugar with European machinery were made some years ago, and the sugarcane, which is chiefly grown in the Shahjehanpore and Suleympore Mujhowlee pergunnahs, does not possess much saccharine juice. The cultivation, though remunerative, has for several years decreased in consequence of the reduced prices. The poppy is extensively grown, and the cultivation has been yearly increasing. Indigo has also been successfully introduced.

The tables in the Appendix will show the increase and decrease of trade since 1856. There is a very large amount of grain annually exported to Dinapore, and the native mercantile firms have agents at all the marts, but the rates are much lower than in other districts. Sugar, hides, linseed, and saffron are exported to Calcutta. The trade in sal timber from Nepal has very much increased, and the wood is floated down the rivers to Semree and Dinapore. The principal marts for Hill produce, chiefly consisting of iron and copper, which are exchanged for Manchester cotton goods, &c., are, Mehndawal, Biskohur, Sahibgunj and Chilheea. The trade in oxen is carried on by people called "Berdahas," who buy cattle in Oude and pass through this district to Sarun and Benares; Bujaha Bazar, in the Aleedapore grant, on the Nepal frontier, is the largest cattle mart. The weights vary considerably in the city of Goruckpore. European goods are sold by the seer of 80 Sicca Rupees. Grain is purchased by the dealers by the seer of 36 gundas, and sold at 32 gundas' weight. In some parts of the district, grain, ghee and oil are sold by the measure of 4 manas = 1 sei; 16 seis = 1 manee; 16 manees = 1 gond.

The principal rivers are :—

1. The Gogra or Surjoo, which rises at Bhugeswur, forms the boundary opposite Fyzabad, near Belwa, extends 160 miles, and falls into the Ganges near Chupra. There is a large volume of water with a rapid current in the rainy season. The lowest depth of water is never under three feet and is navigable for steamers; the channel is tortuous. Its tributaries are the Punar, Ramgunga, Kalanuddee, and Kooana. From Fyzabad westward this river is called the Surjoo, from Fyzabad to Burhuj it is called the Gogra, and thence till its confluence with the Ganges it is called the Dewah.

2. The Raptee, also called the Airawathee, is formed by the junction of two rivers, the Maree and Jhingruk. It enters this district in the North-west, and after a course of 235 miles.

The Ghonghi, Tinawee, Dundo, Bangunga, Rohin and Amee are its chief tributaries. The stream is very tortuous, and there are many sandbanks, and is only navigable for steamers and large boats from July to November.

3. The great Gunduck rises in the Nepal Hills, and forms the boundary between Sarun and Goruckpore. Its current is very rapid.

4. The Kooana takes its rise in Gondah, Oude, and enters this district 13 miles west of Doomureeagunj and falls into the Gogra at Gopalpore. It is navigable for boats of 1,000 maunds burthen from June to September, and during the dry season for boats of 100 maunds; it has a small branch called the Jehada. Is joined by the Rawai at Lalgunj, and unites with the Bisui.

5. The little Gunduck runs through pergunnahs Tilpore, Haveylee, Goruckpore, Shahjehanpore, Sidhooa, Jolna, and Suleympore, and falls into the Gogra or Dewah at Goothnee Ghaut in the Sarun district. The current is slow and it is navigable for 8 months.

6. The Dhumeyla issues from the hills near Bootwal, runs south through the Terai under the name of Tinawee, until joined by the Tilar at Domohana; it then takes the name of the Koonra, and when united with the Bangunga ,is called the Dhumeyla, and falls into the Raptee 10 miles below Kurmynee Ghaut. It is navigable for boats of 500 maunds at all seasons of the year to Dhanu Bazar, and smaller boats can go as far as Ooska, a little higher up.

7. The old Ghonghie falls into the Dhumeyla, about three miles from its mouth. It is deep, with high banks.

8. The Munorama issues from a lake at Terhu in Oude, ten miles north of Gondah, and falls into the Kooana at Lalgunj Bazar. It is navigable for boats of 400 maunds during the rains to Huryah Bazar and Amaree Bazar, in pergunnah Amorha.

The Boorhee Raptee enters the district in the North-west near Biskohur, and falls into the Bangunga at Kukruhu Ghaut, in the Bansee pergunnah.

The Bangunga rises in the Nepal Hills, enters this district about a mile and a half above Jhurrooa Bazar, and after being joined by the Boorhee Raptee, unites with the Koonra near Dhanee.

The Rohin enters the district in pergunnah Benaikpore east, and passing through that pergunnah and Huveylee Goruckpore, joins the Raptee one mile below Domiygurh. It has only one tributary, the Pyas.

Although the channels of most of these rivers are not very deep, the streams rising in the hills are perennial, and there are many small tributaries.

The Lakes are:—1. The Motee Jheel, near Bukhra, is the largest. It is 7 miles long and 3 broad.

2. The Ramgurh Jheel, near the station of Goruckpore.

3. The Chilwa Tal, in pergunnah Huveylee, Goruckpore.

4. The Seekunderpore Tal, in pergunnah Amorha.

5. The Manaur lake, in pergunnah Bhowaparch, 3 miles long and 1 broad.

6. The Naur Jheel Do. do.

7. The Kungra Tal.

The chief marts are:—

1. Mehndawal.	7. Dhanee.	13. Huryah.
2. Burhuj.	8. Sahibgunj.	14. Gowrah.
3. Burhul.	9. Tewareeputtee.	15. Gaeghat.
4. Biskohur.	10. Gopalpore.	16. Bethurreea.
5. Goruckpore.	11. Dhukwa.	17. Doomurreeagunj.
6. Belwa.	12. Ooska.	

Roads and stages for marching, distant 10 to 14 miles from each other.

Goruckpore to Azimgurh 58 miles, *via* Baleepar, Koureeram, Gugguha and Burhul; the last place is 37 miles distant from the station of Goruckpore.

Goruckpore to Fyzabad, 74 miles *via* Suheejunwa, Kantee, Bustee, Captaingunj, Amorha and Belwa.

Goruckpore to Toolsheepore, Oudh, 77 miles *via* Bareipar, Bukhera, Gomthaha, Bansee, Mehdanee and Baskohur.

Goruckpore to Chupra, 110 miles *via* Chowree-chowra, Deoreea, Moosyla, Sulympore, and Goothnee.

Goruckpore to Segowlee, 84 miles *via* Pipraich, Captaingunj, Ramkola, Purrowna, and Teelukpore on the banks of the great Gunduck.

Goruckpore to Bootwal, 80 miles *via* Furdoohunnee, Mirhirya, Bella Harya, Nowtunwa and Rossuawal.

The agricultural products are, in the spring harvest, wheat, gram, barley, sugar-cane, poppy, pulse, vetches, saffron and oilseeds; in the autumn harvests, rice indian corn, orid, til and some other inferior grains. A description of coarse rice is planted on the margins of some jheels and raised by constant irrigation. The growth is stunted, but the produce is good; it is reaped in March and is called "Boro." The average produce per acre of the spring crops is about 15 maunds; the cost of cultivation is five Rupees.

The fishes are, Rohu (*cyprinus denticulatus*), Mullet, Nynee, Bhukoon, Bhugna, Hilsa (rare), Julkapore, Girei, Sowlee, Chhurwunch, Bam, Mulga, Chelhwa, Dhoee Sooyah, Sooha, Jubree, Munka, Bisseya, Purhin, Gonch, Munsehr, Bykree, Koorsee Kurrounchha, Prawn, Shrimps. There are two varieties of crabs, three of the tortoise, two of leeches, five of anivalves, three of bivalve shells; the Porpoise, the Nak, and Ghuryal abound in the Raptee, the Boorhee Raptee, and other rivers, and there are three kinds of water snakes, and two of leeches.

The principal land snakes are the Boa Constrictor, the Cobra, the Kurrait, the Ghor-kurrait, the Dhamin, the Phetar, the Gundait, the Loharin, and the Soogowah, and Scorpions and Centipedes.

There are three varieties of Parrots, 4 of Mainahs, 3 of Shaimahs, 4 of Hawks; the other birds are Ortolan, Florican, Bustards, Pluvers, Cuckoo, Black Partridge, Quail and Pelican and every variety of water-fowl is found in the lakes and jheels.

Tigers, Leopards, Bears, Deer, Antelope, Wolves, Foxes, wild cattle, wild Pigs and the Hare are found in the forest. The last two abound.

The Commissioners, the Judges, the Magistrate and Collector, the Deputy Collector and Joint Magistrates, the Principal Sudder Ameens, the Sudder Ameens and two Moonsiffs' Courts are held at the station of Goruckpore. The district is divided into 7 Revenue circles, comprising 19 pergunnahs and 292 tuppas, each under a Tehseeldaree; parts of circles 4 and 5, being the country contiguous to the station, have been formed into the Huzoor Tehseel, which is in charge of the Collector's Sherishtadar, and there are 53 Police stations under the District Superintendent of Police.

Circle I.—Captaingung.—Contains three pergunnahs, Amorha, Aurungabad, Nugger and Munsoornugger Bustee; its total area is 480,734 acres, and it contains 2,477 villages.

Pergunnah Amorah.—With an area of 1,70,665 acres, of which 1,06,755 are arable and 63,910 unculturable, comprises six tuppahs :—

Burgawan, containing	140 villages,	Belwa,	...	161,	Doobowleea	...	145.
Pooraina,	„ 190	„	Ramgurh,	... 109,	Sekunderpore	...	146.

There are three large villages, Amorha, Belwa Bazar and Doobowleea Bazar, and there are 888 other villages; total 891. This purgunnah is bounded by Oudh on the North and West, on the South by the Gogra, and on the East by pergunnahs Nugger and Bustee. It is watered by the Gogra, the Munwarama and the Ramreykha, and there are two tals, Sekunderpore and Puchwur. Dorus, Bulloon and Mutteear, are the prevalent soils; the cultivation of the poppy is considerable. The predominant caste is the Soorjbuns Rajpoot, and there are not many Mahomedans; the population is about 625 to each geographical square mile. The chief proprietor is the Rajah of Bustee. There are 10 Hulkabundee schools.

The land is highly cultivated. There are no manufactures of any importance; cloths, utensils and implements of husbandry are imported. Four different kinds of seers are used, viz., of 128, 120, 112 and 100 Co.'s Rs. weight respectively.

TENURES.—Puttoedaree prevails; there are 281 Birt villages, but very few rent-free, and there are 13 in which the Beeghadam system obtains. The land measure in use is:—

20-21 inches=1 cubit. 3 cubits=1 lutta. 5 square luttas=1 dhoor. 5 square dhoors=1 biswah. 28 square biswahs=1 beegha. 2 beeghas 2½ dhoors=1 acre.

ANTIQUITIES.—There is a very old canal, three miles long, with very old ruins on its banks, between Amorha and Rupnagar, an ancient seat of the Surya Bangsi, and in the Thakoorbaree is an image of full human size, called the keeper of Bali Raja. The ruin of Ratkas and Deogunj, near Lalgunj, were the residences of the Tharoos.

Pergunnah Aurungabad Nugger.—Is bounded on the North by Bustee, on the West by Amorha, on the South by the Gogra, and on the East by Muhoolee; it contains an area of 1,30,324 acres, of which 1,14,761 are arable, and 15,563 unculturable, comprising 670 villages in twelve tuppas, viz:—

Tuppa Doobkra,	41 villages.	Khoorcear,	99	Huveylee,	38.	Munwurpar,	52.
Guneshpore,	27 „	Nai,	118	Kurrulee,	54.	Oojee,	65.
Koorah,	15 „	Pepra,	48	Kulwaree,	81.	Pelaee,	32.

One half of the land is sandy, the remainder Dorus and Mutteear. The staple products are wheat, barley, peas, urwur and poppy. Kulwaree Khas is the largest village. The rivers are the Gogra, Munwur, Kooana, Rewai and Gowree; the largest jheel is Tal Chunuch. Markets are held at Kulwaree Khas, Kukkooaoja, and Buttoopore.

The predominant castes are Gowtum Rajpoots and Aheers; there are not many Mahomedans, and one-half of them are weavers. The population is about 620 to the square mile.

The chief proprietors are the Rajah of Bansee, to whom the confiscated estates of the Rajah of Nugger have been granted by Government, and Amanoollah Pindarra

to whose ancestor, Kaddir Bux Khan, the Gunneshpore Talooqua, was granted in 1818.

The land is well cultivated and irrigated from the rivers, and manure is freely used. There are no large marts nor any important manufactures. Cloth is stamped at Muhooadabur and exported to Nepal. The seers used are 136 and 100 Company's Rupees weight.

Simple putteedaree is the common tenure. There are 11 Hulkabundee schools.

The land measure is 20·9 inches, = 1 cubit. 5 cubits, = 1 lutta. 1 beegha, 8 biswas, = 11 dhoors = 1 acre.

Munsoornugger Bustee.—Is bounded on the North by pergunnah Russoolpore Ghous, on the East by Hussunpore Mughur and Muhoolee, on the South by Aurungabad Nugger and Amorha, and on the West by Oude; its area is 1,79,745 acres, of which 1,38,051 are arable, and 41,694 unculturable, and there are 916 villages in the following 11 Tuppahs:—

Deoraon,	26	Kotheela,	40	Purreea,	19	Senpore Gopalpore,	178.
Hurdee,	67	Kurur,	67	Ruttenpore,	39	Utroh,	47.
Huveylee,	134	Oomrah,	81	Sekunderpore,	138		

With the exception of Tuppah Deoraon, the land is fertile. The Khurreef is the principal harvest; there is very little sugarcane, but poppy is extensively cultivated. Salt, iron, and other articles are brought from Gopalpore; coarse cloth is manufactured, and the finer sorts are imported from Tandah; markets are held at Bustee Khas, Muhroadabur, Mujhowameer, and Sultowa. The only large place is Bustee Khas, where the Rajah of Bustee resides, and the only river the Kooana; there are no jheels. There are not many Mahomedans; and of the Hindoos, Koormees predominate; the population is about 530 to the square mile. The chief proprietors are the Rajah of Bustee and Baboo Zubber Sing, also Rubpergas Mun Tewaree.

The land measure in use is the same as in pergunnah Nugger, the seer 100 Company's Rupees weight. There is one Tuhseelee school at Bustee and 10 Hulkabundee schools at other places.

Circle II.—Bansee contains three pergunnahs, viz., Ruttenpore Bansee, Russoolpore Ghous, and Benackpore West. Its total area is 7,63,724 acres with 2,625 Mouzahs.

Pergunnah Ruttenpoor Bansee.—Is bounded on the North by the Nepal Terai, on the West by pergunnah Russoolpore Ghous and Oude, on the South by pergunnah Hussunpore Mughur, and on the East by pergunnah Huveylee Goruckpore. It contains 42 tuppahs, comprising 1,784 villages, with an area of 5,24,594 acres, of which 4,12,722 are arable and 1,11,872 unculturable and forest viz:—

Aikhin,	---	27	Dewaichpar,	---	17
Barakpar,	---	45	Dhabburoea,	---	65
Bansgaon,	---	45	Ghose,	---	42
Bheer,	---	18	Resnar,	---	144
Boodhee	---	79	Ghurwaspar,	---	11
Bunjurha,	---	49	Goolour,	---	10
Burgudwa,	---	15	Hata,	---	97
Burhon,	---	43	Heer,	---	40
Chunwur,	---	42	Khankote,	---	28
Chutteesee,	---	32	Khasuruha,	---	40
Dubra,	---	59	Khyra,	---	12

Khujuhunee, ...	57	Nugwa, ...	93
Koodarun, ...	91	Oontapar, ...	25
Koruree, ...	68	Puchuhur, ...	78
Khooneeao, ...	25	Puthurhut, ...	10
Kope, ...	12	Patna Husunpore,	66
Kote, ...	61	Sirwunt, ...	47
Musna, ...	65	Sohas, ...	18
Nandeypar, ...	22	Soohela, ...	37
Nukkowlee, ...	23	Thurroulee, ...	80

The largest village is Bansee Khas. Besides the Chuwunr Tal, there are several other small jheels, and the tract north of the Boorhee Raptee is much cut up by nullahs. Near Chettia, a few miles north-east of Bansee Khas, is a small forest of saul; and near Doomeriagunj another forest, chiefly of Muhooa trees. The rivers are the Raptee, Boorhee Raptee, Bangunga, Ghonghee, Tenawee, Purasee, Deblathee, Amdahee and Sickree. The soil is generally very fertile, dorus and mutteear prevail. Rice (a very fine kind of which is known at Lucknow as "Bansee" rice), wheat, gram, barley, jonhar, oorid and oil seeds are the principal products; rice is grown extensively, but there is very little sugar-cane or tobacco.

There are above 30,000 Mahomedans, and the population is about 180 to the square mile.

The tenures are zemindaree and putteedaree; there are 86 rent-free villages and 90 birts. Several forest grants were given to English settlers, and have all been brought under cultivation. The chief proprietors are Muheepal Singh and Muhindur Singh, Rajah of Bansee, Lalla Seetul Pershad, Sheobux Panrey, of Dhurmsingwa, Suttrohun Nath and Simbhoo Nath Tewarees, of Chittia.

The land measure is 20·7 inches = 1 cubit, 5 cubits = 1 lutta, 1 beegah 4 biswahs, 7½ dhoors = 1 acre.

The principal mart is Biskohur, to which hill produce, consisting of copper, pice, wrought and unwrought iron, &c., are brought, and the exports to Botwal in Nepal are cloth, cotton, wool, soap, and spices. Annual markets are held at Chilheea, Bharee and Kussasurnath. Ooska, Bansee khas, Kulnakhore, Doomureaganj, Bethurrea and Gowra are flourishing bazars. The seers weigh 30 and 100 Co.'s Rs., and in many parts grain, oil and other articles are sold by measure; the mana or quarter sei contains 22 Co.'s Rs. weight; 4 manas make one sei, 16 seis = 1 manee, and 16 manees = 1 gond.

There is one Tehseelee school at Bansee khas and 30 Hulkabundee schools. A branch Dispensary is about to be established at Bansee khas.

Kuttehla, on the southern bank of the Boorhee Raptee, is an ancient seat of the Tharoos, and it subsequently became the residence of the Rajpoots. The Kuttehla Rajahs were expelled by the Sirneyts. There are old ruins at Sonowlee and at Suryah.

Pergunnah Russoolpore Ghous.—Is bounded on the north by pergunnah Ruttenpore Bansee, on the west by Oude, on the east by Bustee and on the south by Mughar; it contains an area of 2,11,738 acres, of which 1,74,604 are arable and 37,134 unculturable, divided into 8 tuppahs comprising 724 villages as follows:—

Adumpore,	---	55 villages.	Sahuree,	---	14 villages.
Bhanpore,	---	81 "	Sugrah,	---	93 "
Chupeeah,	---	113 "	Awaineeah,	---	150 "
Hullour,	---	70 "	Kurahee,	---	148 "

The Raptee divides this pergunnah into two parts, the southern called "turf Lala" and the northern "turf Gala." The largest village is Bhanpore; the Raptee is the only river, and there are no large jheels. The land is highly cultivated and mutteear is the prevalent soil. The largest crop is the khurreef, but rubbee crops are also extensively grown along both banks of the Raptee; there is a good deal of poppy, but very little indigo or sugar-cane. There are about 20,000 Mahomedans, and the population is nearly 284 to the square mile. There are 10 Hulkabundee, schools.

The tenures are zemindaree and putteedaree. The Bansee Rajah has 32 Nankar villages; there are 23 birts, and the Hullour muhal is rent-free The land measure is 22.7 inches = 1 cubit, 5 cubits = 1 lutta, and 1 beegah 4 biswahs and 7½ dhoors are equal to an acre.

The chief proprietors are Hurdyal Singh and Sumruth Singh, Baboos of Chowkhurra, Gopal Singh of Bhanpore, Hurmungul Singh of Merkhoreea, Lalla Girjanat Suhae, and Ramsuroop Doobey of Sirwunt.

Benackpore West.—This pergunnah is divided into two tuppahs, and is separated from the eastern pergunnah of this name, which is included in Circle V. by pergunnah Huveylee Goruckpore; it was colonized from the Bansee and Mughur pergunnahs. It contains 117 villages, and its area is 27,392 acres, of which 13,277 have been assessed, and the greater part of the remaining 14,115 is forest. Two-thirds of the land is dorus, and the rest mutteear; all sorts of grain are produced, and the rubbee harvests are good. The average population is about 126 per square mile. There are two jungle grants, and the rest is zemindaree. The chief proprietors are Mr. J. H. Bridgman and the Messrs. Gibbon. Tuppah Netwur contains 84 villages, with an area of 22,514 acres, and tuppah Bhatinpar has 33 villages, area 4,878 acres.

Circle III.—Contains pergunnahs Muhoolee and Hussunpore Mughur; its total area is 5,93,146 acres, comprised in 2,786 villages.

Pergunnah Muhoolee.—Is bounded on the north by pergunnahs Nugger and Bustee, on the east by Oonowla and Doorceaparch, on the south by Doorceaparch and the river Gogra, and on the west by Nugger. Its area is 383 square miles; it contains 1,098 villages comprised in 34 tuppahs, as follows:—

Ajaon,	---	30	Kurree,	---	14
Aonradaur,	---	37	Khursunr,	---	17
Burgaon, East,	---	11	Mandur,	---	20
Burkut,	---	45	Mehndee,	---	59
Burgaon, West,	---	21	Muhtowlee,	---	45
Boozoorgwar,	---	15	Mehthee,	---	15
Chundrowlee,	---	6	Mehra,	---	20
Churkyla,	---	46	Mooradpore,	---	53
Kupree Muhson,	---	65	Nowdaur,	---	19
Dehee,	---	39	Suggur,	---	17
Deokulle,	---	21	Simree,	---	49
Fidaeepore,	---	24	Sirsee,	---	55
Juggernathpore,	---	35	Soobhukree,	---	30
Koochree,	---	74	Sohnra,	---	18
Koodurha,	---	44	Mata,	---	8
Kooron,	---	57	Turf Belghuttee,	---	12
Kubree,	---	42	Nurreyapar,	---	35

is 20·7 inches = 1 cubit, 6 cubits = 1 lutta, and one beegah 10 biswahs, 17 dhoors make one acre.

Pergunnah Anowla.—Contains three tuppahs comprising 401 villages, with an area of 70,699, of which 49,403 are arable and 21,296 unculturable acres, viz., tuppah Haveylee, 161 villages, Bunkutee 64 villages, Muhson 176 villages. The land between the Amee and the Turrynee is inundated, and is not so good as the other portion of the pergunnah, which is bounded on the north by Hussunpore Mughur, on the east by Bhowaparch, on the south by Dhoorecaparch, and on the west by Muhoolee. The largest village is Shahpoor; there are no lakes and only one river, the Amee. There are 172 birt villages, the other tenures are zemindaree and putteedaree, the Rajah of Oonwal is the largest proprietor. The chief castes are Rajpoots and Brahmins; the population is 548 to the square mile; there are 10 Hulkabundee schools. The principal bazar is Bhynasa.

Pergunnah Dhoorecaparch.—Is bounded on the south by the Gogra, on the east by pergunnahs Bhowaparch and Chilloopar, on the north by Anowla, and on the west by Anowla and Muhoolee.

It contains 24 tuppahs, comprising 1,243 villages with an area of 1,96,154 acres, of which 1,36,274 are arable and 59,880 unculturable.

Belghat,	---	316	Mujoree,	---	32
Bhudur,	---	54	Nukhoondee,	---	27
Bubnowlee,	---	37	Nurei,	---	71
Bunkut,	---	30	Khootuhun,	---	56
Burhuj,	---	32	Oosree,	---	35
Chandpar,	---	149	Palee,	---	41
Chonrur,	---	28	Bursee,	---	29
Dandoo,	---	7	Ruttenpore,	---	24
Gour,	---	25	Uthysee,	---	25
Haveylee,	---	53	Shahpoor,	---	29
Gobinda,	---	18	Teeur,	---	39
Koormout,	---	64	Tatee,	---	22

The soil is fertile, and the rubbee crops predominate. The principal bazars are Gola-Gopalpore, Bhukwa, Hata, Sikreegunj, and Bogra. The seer weighs Co.'s Rs. 100. The rivers are the Kooana, the Turrynee, and the Gogra; there is one tal, Kasoon.

The chief castes are the Brahmins and Rajpoots; the population is 687 to the square mile. The principal proprietors are the Rajah of Gopalpore and Shamshere Buhadoor Khan Pindarah. The land measure is 20 inches to a cubit, five of which make the lutta, and one beegah ten biswahs and seventeen dhoors are equal to an acre. There are 15 Hulkabundee schools.

Pergunnah Chilloparah.—Situated on the south frontier of the district is bounded on the east by the Raptee, on the south by the Gogra, on the north and west by pergunnah Dhoorecaparch. It contains 5 tuppahs and 211 villages, and its area is 1,13,689 acres, of which 69,716 are arable, and 43,973 unculturable. Haveylee 89 villages, Sekunderpore 77 villages, Semra 27 villages, Kusbah 4 villages, and Mujhowleea 14 villages. The two largest villages are Burhulgunj and Nurhurpore. The rivers are the Gogra, the Kooana and the Turryna; there are two tals, the Bhenrya and Gunkurree. The soils are dorus and mutteear; the land is fertile and produces extensive rubbee crops. The land measure is the hath of Cazee Kumulooddeen = 25 inches, five of which make one lutta, 20 square luttas = one beegah of 3,402 square yards and 2·9 feet, 1·4223 beegahs = one statute acre of 4,840 yards. The prominant

castes are Brahmins and Rajpoots; the population is 636 to the square mile, and there are five Hulkabundee schools.

CIRCLE V.—Contains pergunnahs Haveylee Goruckpore, Tilpore, and Benackpore east. Its total area is 11,99,602 acres, and it contains 2,041 mouzahs.

Pergunnah Haveylee Goruckpore.—Is bounded on the east by the little Gunduck and pergunnah Sylut, on the south and west by the Raptee and pergunnah Bansee, and on the north by Nepal and pergunnahs Tilpore and Benackpore east. It contains 28 tuppahs, 1,674 villages, and 9,20,167 acres, of which 7,00,565 are arable and 2,19,602 unculturable and forest :—

Mutkopa,	50	Rujdhanee,	94
Beraicha,	58	Haveylee,	82
Purwurpar,	58	Khootuhun,	80
Dadoopar,	49	Kusba,	31
Bhursunr,	40	Gowra,	65
Lekma,	7	Puchwara,	104
Oontee,	28	Kutuhra,	170
Purkhoree,	24	Murachee Chundoser,	11
Ageya,	15	Bharee Bysee,	21
Bindwar,	42	Regowlee,	87
Putra,	96	Sukra,	18
Keotlee,	87	Soomboakhore,	29
Russoolpore,	41	Lehra,	233
Bankee,	40	Undheya,	14

A large belt of forest commences from the south-east and extends to the Nepal Terai. The country east of this belt is dry and healthy, and on the west the land is low and unhealthy. The rivers are the Raptee, the Rohin, the Little Gunduck, and the Toora and Moojuhna nuddees; there are two lakes, the Ramgurh and Chilwa jheels. Sugar-cane, wheat, barley, gram, and rice are the staple products. The principal caste is the Puttunwar or Koormee; the population is about 260 to the square mile. The land measure is 20.5=1 Cubit, 5 cubits=1 cutta, one beegha, 10 biswas and 11 dhoors=1 acre. There are 29 Halkabundee and one Tehseelee school.

The town of Goruckpore, containing about 50,000 inhabitants, with the Civil station and Cantonments, is situated in this pergunnah. There are two Dhurmsalas for Zemindars who come into the station from the district built from private subscriptions by Mr. E. A. Reade, and there is also a Dispensary and Charitable Hospital at the station. There is a small native christian colony with a Church at Bisharutpore, about three miles from the station, belonging to the London Church Missionary Society, who have also a Church and boys' and a girls' school at the station. The other principal places are Pipraich and Captaingunge. The seer used by the traders in the town in buying is 144 Co.'s Rs. weight, and in selling the 128 Co.'s Rs. weight. Out of town the 100 Co's. Rs. weight seer is in use, where also grain is sold by the measure called the Rujjeed, which contains 144 Co.'s Rs. weight. Dhanee on the Dhumeyla is the largest mart in this pergunnah.

The tenures are principally zemindaree and putteedaree. In tuppah Lehra, colonized by the Tharoos, what is in effect a zemindaree is called a mooqudumee tenure; there are 74 rent-free and 130 birt villages. The chief proprietors are, Meeah Ahmed Ali Shah, Syud Abdoollah Subzposh, Sirdar Soorut Singh Bahadoor, Bhya Rampershaud Singh, Sectul Singh, Juggut Singh, Goolal Singh, Doond Bahadoor

Singh, Rubpergas, Mun Tewaree, Boodhesmun Tewaree, and Pundit Radeykrishen Opudheea.

At Etaya, 4 coss north-east of the town of Goruckpore in the forest, there is a noted monument to a Saint called Abdool Kadir Lazim Dustgeer, who was buried in Bagdad, but fasted here 40 days. There are also six temples of Siva.

Domingurh, at the junction of Rohin and the Raptee, was a fortress built by the Domkutar Rajpoots. It is now a sanatarium, and there is a small house built by Mr. Reade for the European residents. There are 20 old ruined forts, originally constructed to keep off the Bunjaras at Rujhanee; 14 miles south-east, there are the ruins of a fort built by a Kasee Rajah.

Pergunnah Benackpore East, bounded on the north and west by Nepal, on the south by Haveylee Goruckpore and on the east by Tilpoor, contains three tuppahs, 71 villages, and 92,402 acres, of which 18,254 have been assessed and 74,148 are unculturable and forest. It formed part of the territory belonging to the Rajah of Bootwul and is chiefly occupied by Tharoos, a migratory race. The soil is peculiarly rich; rice is the chief product, but tobacco, pepper, and ginger are grown largely, and bhang grows luxuriantly in its wild state. The jungle grants to Europeans amount to 42,320 acres. The land measure is 22·5 inches to 1 cubit, 5 cubits equal to one lutta, 1 beegah 4 biswas and 7 dhoors = 1 acre. The seer and measure in this pergunnah are the same as those in pergunnah Huveylee. There are 10 Hulkabundee schools.

Tilpoor, one of the pergunnahs near the Terai, is bounded on the north by Nepal, on the east by the great Gunduck and Sidhooa Jobna, on the south and west by Huveylee Goruckpore and Benackpore east. It contains 7 tuppahs, 296 villages, and 1,87,033 acres, of which 90,545 have been assessed and 96,488 are unculturable forest and waste, viz., tuppah Nai Kuruhee 48 villages, Pooranee Kuruhee 33 villages, Domakhund 14 villages, Bharuth Khoond 45 villages, Khas 89 villages, Sookruhur 22 villages, and Sonaree 45 villages. The soil (dorus, muttcear, bhat or bulloon) is good. Rice, cotton, sugar-cane, urhur, tobacco and turmeric are the staple products. There are very fine sissoo and khyr trees in the forest. There are weekly markets at Nichloul, Kotheebhar, Bulheekhore, Mithowa, Chowk and Burhee-poorwa. The weights and measures are the same as those of pergunnah Haveylee. There are 10 Hulkabundee schools.

This pergunnah was originally occupied by Tharoos, and was named after Tilvikram Sein, who joined the Bunjarahs, and subduing the Tharoos, remained in independent possession until he was defeated by Nawab Kasim Ali Khan. It was ceded by the Nepalese in 1815 to the British Government.

The population is about 159 to the square mile. The land measure is 23·5 inches to the hath or cubit, 5 of which = 1 lutta, one beeghae 3 biswas and 4 dhoors are equal to one acre.

CIRCLE VI.—Contains only one pergunnah, viz., Sidhooa Jobna.

Pergunnah Sidhooa Jobna, bounded on the north by Tilpore, on the east by zillah Chumparun, on the west by Haveylee Goruckpore and Shahjehanpore, and on the south by Zillah Sarun, contains 22 tuppahs, 1,282 villages, and 5,92,338 acres, of

which 3,99,425 have been assessed and 1,92,913 are unculturable and forest. Its average length is 38 miles and its average breadth 19 miles:—

Butessura,	157	Mulsil-surynee,	78
Rampore Dhab,	14	Burgaon,	63
Khan,	54	Bankjoguee,	65
Pukree-gangranee,	31	Haveylee,	119
Dandopore,	64	Bhulloa,	44
Puppour,	69	Sunree,	39
Bansee chireya-gora,	109	Rampore-rogha,	31
Pirtheepore,	9	Shunkolgangeea teekur,	43
Dhooreea-bechhour,	40	Maupore-sabheykhor,	56
Supuhee jogeea,	39	Purwurpar,	80
Mudraon-puttee,	47	Nowgawan,	34

Bangor and bhat prevail interspersed with dhoosee. Sugar-cane and rice are the staple products, and indigo, poppy, and all grains are abundant. Kusseya, Purrowna and Nimboa are the principle villages. The great and the little Gunduck and the Jhuruhee Nuddee pass through this pergunnah. There is one tal, Rambharee.

The chief marts on the great Gunduck are Tewaree Puttee and Sahibgunj. The exports are sugar, saltpetre and indigo. There is a considerable manufacture of the cloth called koktee from a peculiar kind of cotton. Bulnowle Indigo Factory is situated in this pergunnah. The seers used weigh 34, 50, and 100 Company's Rupees severally.

The largest proprietors are the Rajah of Tumkoohee, the Rae of Purrowna, Baboo Sewun Sahea, Birjmohun Gobind Rae, Mohun Sing, Nursing Singh and Hunman Sahee. There are 45 whole estates and parts of 117 held by Birteeas, and several forest grants. Talooqua Bank Jognee belongs to the Rajah of Tumkoohee. The land measure is 19½ inches equal to 1 cubit, 5½ or 6½ cubits 1 lutta, 1 beegah 4 biswahs, and 8 dhoors make one acre. There are 30 Hulkabundee and one Tehseelee school. The population is about 450 per square mile.

The land near Purrowna is elevated. A long narrow forest, containing many mimosa and other prickly trees rather stunted, winds obliquely south and north through the middle of this pergunnah. The custom of fallow is prevalent. There are no large lakes; the springs of water are very near the surface. At Bansi Ghat, on the great Gunduck, a religious fair is held at full moon in Kartick. At Parcine, six coss south-west of Purrowna, near the ruins of the Nawab's cantonments, and about a mile west of Kusseyah, there are a conical mound called Devisthan and the ruins of a solid circular Buddhish temple. There is also a large image carved on a block of stone, probably placed there by a Tharoo. In mouzah Mudrapalee, on the banks of the Dohar, 3 miles from Belawa, there are the ruins of an old temple with a quadrangular terrace with two images. At Helimpore, there is an old fortress called Bawun-Moorcha (52 bastions) and a place dedicated to the tutilary goddess (Devi) by a certain Rasu, who was the chief priest of one of the Tharoo Princes. Goitre prevails in the vicinity of the little Gunduck, and is attributable to the calcareous deposits of that river.

CIRCLE VII.—Deorea contains the pergunnahs of Shahjehanpore, Sylhut and Suleympore Mujhowle. Its total area is 6,26,467 acres, divided into 2,161 mouzahs.

Pergunnah Shahjehanpore is bounded on the east by Sidhoua Jobna, on the north by Haveylee, on the south by Shajehanpore and Suleympore Mujhowlee, and on the

west by Sylhut, and contains nine tuppahs, 257 villages, and 88,083 acres, of which 72,868 are arable and 15,215 unculturable:—

Bhitnee,	13	Bechowlee,	42	Nudceapar,	15
Bhynsa Dabur,	21	Chukdeya,	18	Patna,	41
Mujhowa,	8	Nugwa,	59	Turkoolwa,	40

It extends 14 miles north and south and ten miles east to west. The soil consisting of bangor, bhat and bulloon, is of superior quality, but there is a large proportion of poor land on the sand ridges, which extend for several miles in this pergunnah. The lands are irrigated from jheels and tanks at a cost of Rs. 1-4-0 per beegah. The largest village is Hatta and the only river, the little Gunduck. There is a great deal of sugar-cane grown, and at Rampore there are many sugar manufactories. The chief castes are Rajpoots and Brahmins. The population averages 533 to the square mile. There are 10 Hulkabundee schools.

The tenures are jemindaree and putteedaree, and there are two Moqudmee tenures.

The land measure is 18 inches = 1 cubit, 5½ cubits = 1 lutta, 20 biswahs = 1 beegah. One beegha 6 biswahs and 18 dhoors are equal to one acre. The chief proprietors are Sadashen Rae, Urjoon Rae, Kuddum Rae and Sreekishoon Rae, residents of Rampore and Mooreyra.

Pergunnah Sylhut is bounded on the north by Haveylee Goruckpore, on the west by Haveylee Goruckpore and Bhowaparch, on the south by Chilloopar, and on the east by Shahjehanpore and Suleympoor Mujhowlee, and contains 17 tuppahs with 463 villages, having an area of 1,76,035 acres, of which 96,195 are arable and 79,840 unculturable.

Singpore,	28	Idragpore,	6
Bukheera,	10	Dont, ---	10
Kuthowra,	15	Sirjum,	20
Buneechurra,	38	Gowra,	5
Benackpoor,	10	Burnee,	13
Pooraina Churaha,	23	Dhuttoora,	33
Nugwanteckur,	154	Muddunpore,	38
Puharpore,	6	Indoopore,	36
Churreeaon,	18		

The soil is not good and very light. Oorid is the staple khurreef crop; barley, gram and pease are grown in the rubbee. Barley and oorid are exported from Mudunpore to Patna. The 100 Co.'s Rs. weight seer prevails in this pergunnah. The chief caste is Brahmins. The population averages 376 to the mile; there are 10 Hulkabundee schools.

The chief proprietors are Hurdut Singh, Baboo Ramnaraen Sing, Bhugwunt Mun. The land measure is 20·16 inches = 1 cubit, 5 cubits = 1 lutta, 20 luttas make one beegah, one beegah 10 biswahs and 11 dhoors are equal to one acre. Rooderpore is the largest village.

Pergunnah Suleympore Mujhowlee is bounded on the north by Shahjehanpore and Sidhooa Jobna, on the west by Sylhut, on the south by the river Gogra, and on the east by zillah Sarun, and contains 23 tuppahs, 1,441 villages, and 3,62,349 acres 2,88,312 are arable, and 74,037 unculturable; the northern portion is the most cultivated. The chief villages and marts are Larh, Painuh, Mujhowlee Khas, Bhagulpoor, Burhuj, Rajpore, Kapurwar, Bhingaree, Kurroundee, and Mehrowna. Larh carries on a large trade with Nepal in musk, copper vessels, hill iron, &c., and Burhuj is the largest mart for the export of grain. The rivers are the Gogra, the Raptee, and the little Gunduck Kurrowtee Tal is in Tuppa Myle and Burkagaon

Tal in tuppeh Racpoora. The principal castes are Rajpoots, Brahmins and Aheers; the population is about 611 to the square mile, and there are 30 Hulkabundee and one Tehseelee school :—

Bulleeah,	---	---	117	Bhutnee,	---	---	42
Dodh, ---	---	---	39	Huveylee,	---	---	128
Suleympore,	---	---	71	Goutma,	---	---	29
Myle, ---	---	---	123	Sohunpore,	---	---	60
Racpoora,	---	---	159	Bulwun,	---	---	89
Kupurwar,	---	---	27	Ghantee	---	---	60
Sumogur,	---	---	17	Suhjaon, ---	---	---	18
Naigujhurree,	---	---	83	Kuchhooar,	---	---	102
Byrowan, ---	---	---	38	Gobreya,	---	---	19
Khokhundoo,	---	---	26	Sarowlee,	---	---	57
Pooraina,	---	---	49	Deoreea,	---	---	8
Bursecpar,	---	---	80				

The chief proprietors are the Rajah of Mujhowlee, Gobind Dyal Singh, Urjoon Sahee, Sheopershad Sahee and Sheo Doobey. The land measure is 20·7 inches = one cubit; 5 cubits = 1 lutta and one beegah nine biswas are equal to an acre; the seer weight 100 Co.'s Rs.

Suleympore is a corruption of Islampore, called from a Rajah convert Islam Khan. At Soharuj, there is a temple of Parasuram, the priest is a Muhunt, there is a large old tank, and there are four or five Buddhist images; the tradition is that a chief of the Visens, twenty generations ago was cured of leprosy in drinking the water.

Near Bhagulpore is a stone cylinder, with a long inscription in character similar to that deciphered by Mr. Prinsep at Benares; the inscription shows it to have been erected by Mudra in the month of Jeth, 133 years after the death of Skand Gupta. Mudra was the son of Viagra-rah. At Sahiya, there is an old temple with Buddhist images. At Kanghoo there is an elegant pillar, twenty-four feet high with an inscription, the upper part of the shaft has sixteen sites, and the capital is six feet long, quadrangular and inscribed with figures of Buddha.

Near Rooderpore is the temple of Doodhnat, belonging to a convert of Atithis, it has a considerable endowment in land, and at the Sevaratri several thousand people assemble to pay their devotions to Seva or Mahadeo. The old fort built by a Kasee Rajah is near, the ruins are known by the name of Hangsa Tirtha, the sacred place of the goose, the emblem of Brahma. At another temple, one mile south-east of Rooderpore, called Chatra-bhoj, there are three carved stones attributed to the Surias, who are identical with the Goorkhas.

In this pergunnah is the village of Khookhoondoo, called by the Jains Kiskundapore. It is full of ruins, on digging which a Buddhist image is found in every mound, of which there are many at small distances, extending about a mile. It would hence appear to be a very ancient place, and the Jains frequent it from Goruckpore, Patna and Chupra, to perform the ceremony known as the "Moorun," or shaving the first hair of a child.

LIST OF THE CHIEF PROPRIETORS IN THE DISTRICT OF GORUCKPORE.

Lal Muhindur Singh, Sahibzadeh Muhpal Singh, Rajah of Bansee, Sirneyt Rajpoots, the former is the younger. The ancestors of Bhugwunt Singh came from Sreenuggur and settled at Anowla previous to the reign of Jahangeer, Emperor of Delhie. They gradually expelled the aborigines, the last and most powerful chief of whom, viz. the Domkuttar Rajah, whose stronghold was at Domingurh at the junction of the

Rohin with the Raptee, was put to the sword by Bhugwant Singh. He divided his Raj among his three sons, one of whom was the Rajah of Bansee. The pergunnah allotted to him was Hussunpore Mughur, whence the 30th descendant, Rajah Bansdeo, was compelled by the Mahomedan Chukladar to remove to Bansee. The 7th in descent from Bansdeo wrested pergunnah Russoolpore Ghous from Rajah Kasuree Singh. Five generations after the family became extinct on the death without issue of Rajah Surbjeet Singh. His widow adopted Sreepergas Singh, one of the Oonowla branch. The present Rajahs are his sons, and they are at the head of the Sirneyts, who came from Gurhwal with a perwannah from Ala-ood-deen to expel the aborigines. The estates of the Rajah of Nuggur, and his uncle Runmust Singh have been assigned to them by Government in reward for their services and loyalty during the disturbances.

Krishnkeshore Chund, Rajah of Gopalpore, Kowsick Rajpoot. Rajah Chunder Pergas had two sons, Rajah Bhoj of Oojjein, and Rajah Inderdomun of Ghazeepore; the son of the latter, Rajah Bisnat Singh was killed in battle with the "Eastern Emperor," who fixed his capital at Jounpore. Rajah Bisnat's son, Dhoorpchund, was expelled from Ghazeepore and came to pergunnah Sheopore in this district, then possessed by the Bhurs, from whom he took the country and named the pergunnah Dhoorceahpareh. His descendants have retained possession, and the present Rajah is the nineteenth from him. The estate of the Rajah of Nurhurpore, other villages and a khillut of 5,000 rupees value have been bestowed on this Rajah for his eminent loyalty and services during the disturbances.

Oodey Nuraen Mull, Rajah of Mujhowlee, head of the Bisen Rajpoots. A very old family said to have been founded by Cheyt Mull. The tradition is that a Hindoo "Mun," named Maur-bhat, was married to the daughter of a Rajpoot, a daughter of a Brahmin and a daughter of a Koormee, and from him by the Rajpoot's daughter, the origin of this family is derived. Tejmull was Rajah when this district was ceded to the British. The present Rajah is his son, and has received from Government the grant of Mehal Painuh.

Lal Seetla Bux Sing, Rajah of Mustee, Kulhuns Rajpoot. Oodeyraj Sing and Akheyraj Sing came from Maglani with one of the Emperors of Delhie, and received the grant of this Raj. Jai Sing was Rajah when the Nuwab Wuzeer of Lucknow became independent of the Delhie Emperors; the third in descent from him Jobraj Sing was Rajah when this country came under the dominion of the British; the third from him is the present Rajah, a minor. A grant of confiscated land has been added to this Raj, for the good conduct during the disturbances of the minor's grandmother.

Krishn Pertab Mahadoor Sahee, Rajah of Tumkoohee, Bhuinhar Rajpoot. Futteh Sing was Rajah of Hooseypore in zillah Sarun, Bengal. He slew his brother in a quarrel and fled to Tumkoohee, which was formerly included in the territories of the Nuwab of Oude, and there established the present dynasty. The fourth in succession from him died childless, and on the death of his widow Soobund Koonree, Khurk Bahadoor Sahee obtained the Raj; the son of the latter, a minor, now occupies it.

Roodur Partap Sing, Rajah of Oonowla, Sirneyt Rajpoot. Rajah Bhugwant Sing of Sutasee, on dividing his Raj between his three sons, apportioned Oonowla and Bhowapareh to Jugdheer Sing, from whom the present Rajah is descended.

Bhowanee Goolam Pal, Rajah of Muhoolee, Soorjbuns Rajpoot. Ulakhdeo and Telukdeo, two brothers, extirpated the aborigines, the Bhurs, and obtained this Raj

from the Emperor of Delhie with the title of Pal. The seventh in descent Rajah Buctowur Pal was when this country became a part of the Company's territories, the third in descent from him is the present Rajah.

PERGUNNAH AMORHA.

Rae Muheeput Sing Bahadoor, received the grant of 2,500 juma in confiscated lands with the title of Rae Bahadoor for his services during the disturbances.

Ramlal Panrey, Brahmin, a very respectable man of high caste. Received a grant of 2,000 Rupees juma in confiscated lands for his loyalty and services during the outbreak. Mr. Wingfield, Commissioner, wrote of him, that he is next to the Rajah of Gopalpore, the only man in this district who was not a trimmer.

Gopal Sing Rajpoot, formerly a Karinda of Ramlal Panrey, above mentioned, received a grant of 1,500 rupees juma in confiscated lands for his services during the disturbances.

PERGUNNAH MUNSOORNUGGUR BUSTEE.

Baboo Jubber Sing, Kulhuns Rajpoot, a branch of the Bustee family.

PERGUNNAH RUTTENPORE BANSEE.

Seetul Pershad, caste Kayust. Ancestors came from the west and became the Kanoongoes of pergunnah Bansee and acquired large property. Seetul Pershad is a wealthy man, resides at Bansee Khas, and has a Thakoordwara at Goruckpore endowed with a village.

Sheubux Panrey and others, of Dhurmsingwa, are wealthy people and of ancient family.

Suttrohun Nath Tewaree, and Mookht Nath Tewaree, of Chettia, caste Brahmin, wealthy and of high family.

Shimbhoonath Tewaree, Brahmin, of the same family as the above. This person is the "Uprohit" of the Rajah of Bansee, and his ancestors came to this country with the first Rajah from whom they received a jagheer.

PERGUNNAH RUSSOOLPORE GHOUS.

Hurdyal Sing, and Sumruth Sing, caste Kulhuns Rajpoot. A branch of the family of the now extinct Rajah of Russoolpore Ghous, the last of whom Kasurree Sing was dispossessed by one of the Rajahs of Bansee. Their property is large, and they are called the Baboos of Chowkhurra.

Gajpal Sing, of Bhanpore, Sirneyt Rajpoot, a branch of the Bansee Rajah's family.

Hurmungul Sing, of Nurkhoreea, Rajpoot. The ancestors of this person, Ahlad Sing, came to this country and took service with the Nizam of the province. He received the village of Nurkhoreea for his services, and the rent-free tenure continues to this day.

Girjanath Sahee, caste Kayust. Ancestors came from the west and took service with the Rajahs of the pergunnah and received a jagheer from him.

Ram Sarup Doobey, of Sirwut, caste Brahmin. Ancestor came from the Nepal territory and was poor. He gradually acquired property, and the Doobeys of Sirwut are now well known wealthy people.

PERGUNNAH MUHOOLEE.

Baboos Jugut Bahadoor Pal, Ajoodhia Pershad Pal, Baneebux Pal, Soorjbuns Rajpoots, descended from the Muhoolee Rajah's family, reside at Hurryhurpoor.

Bhowanee Pershad Pal, another branch of the Muhoolee family, resides at Hurryhurpoor.

Sawuk Ram Panrey, ancestors came from Rajkoomaree in Oude, and obtained four villages from the Rajah of Muhoolee, the rest of the property, consisting of 13 villages, has been acquired by purchase and under mortgages.

Gujram Pundit, Brahmin, ancestors came from Rajkoomaree in Oude, and obtained five villages from the Rajah of Muhoolee, seven more have since been acquired by purchase and under mortgages.

PERGUNNAH HUSSUNPORE MUGHUR.

Pragdut Raoot, caste Aheer, ancestors were free-booters, and infested the forests in this and neighbouring pergunnahs. They were captured by the Amil and sent to Nuwab Asoo-fool-dowla, who bestowed a jagheer on them on their guarantee to keep the forest free from robbers.

Hurnam Sing, Baboo of Mehndawul, Sirneyt Rajpoot, a branch of the family of the Rajah of Bansee, whose head-quarters were at Mughur before he was driven to Bansee by the Mahomedan Chukladar.

Krishn Pershad Sing, Baboo of Roodhowle, Sirneyt Rajpoot, a branch of the Bansee Rajah's family.

PERGUNNAH DHOOREAPAR.

Amanoolla Pindarra, descended from Kadir Bux Khan, Pindarra, who, on the close of the Pindaree war during the administration of Lord Hasting, received a grant in this district. Much property has been acquired by the family since they were settled in this district.

Shumshere Bahadoor Khan, descended from Kureem Khan Pindarra, also settled in Goruckpore. The Government grant has been largely increased.

PERGUNNAH HUVEYEE, CITY GORUCKPORE.

Ahmed Ali Shah, Durvesh.—Roshun Ali Shah, the uncle of this fuqueer was of a family that came originally from Bokara and settled in pergunnah Dhooreeapar, zillah Goruckpore. He left home early in life, and came to Hajee-daood-chuck, (now known as mohulla Meeah Bazar, city Goruckpore,) where his grandfather by the mother's side resided, and built a shrine there. He became celebrated for sanctity, and Nuwab Asof-ool-dowla, on visiting him, built the Emambarra and endowed it with several rent-free estates; the Rajah of Satassee also gave the Durvesh many villages. He adopted Ahmed Ali Shah, who lives a secluded life, and received a grant of confiscated lands for his loyalty.

Shah Abdoollah, Subzposh, caste Syud. The ancestor of this family claimed lineal descent from Mahomed and came from Medina in Arabia to Hindoostan during the reign of the Emperor Secunder Lodi and received some rent-free villages in Oude, where he built the mosque near Seeta-ka-Russoiya. He obtained some rent-free villages in this district also, where he subsequently took up his residence. The present head of the family is Shah Abdoollah, and the title of Subzposh is a distinctive mark of nobility taken from the greens dress always worn by the head of the family.

PERGUNNAH HUVEYLEE GORUCKPORE.

Sirdar Soorut Singh, Bahadoor, a Seikh nobleman, who behaved with distinguished loyalty and gallantry during the disturbances at Benares, and was rewarded with the grant of half of the Doomree Talooqua in this pergunnah.

Rampershad Singh owns the other half of the Doomree Talooqua; a branch of the Sutassee family descended from Rajah Roop Singh, caste Sirneyt Rajpoot.

Seetul Singh and others, Sirneyt Rajpoots, descended from Rooder Singh, Rajah of Sutassee, who bestowed tuppeh Dadoopar on his son, Anoop Singh; hence this branch of the Sutassee family is distinguished by the appellation "Baboos of Dadorpar."

Jugut Singh, Baboo of Bullooa, Sirneyt Rajpoot, descended from Daswunt Singh, on whom his father, Rooder Sing, Rajah of Sutassee, bestowed the tuppeh of Bindwar.

Golab Singh and others, Baboos of Bullo, Sirneyt Rajpoots, descended from Jye Singh, another son of Rooder Singh.

Doond Bahadoor, &c., Baboos of Burhujapar, Sirneyt Rajpoots, descended from Ragho Singh, son of Bussunt Singh, Rajah of Sutassee.

Rub Pergas Mun Tewaree, Brahmin, a branch of the Doorwa Tewarees, descended from the Pundit, who accompanied the first Rajah of Sutassee to this district.

Boodhes Mun Tewaree, of Dhanee, Brahmin, of the same family as the above.

Pundit Radheykrishn, Oopudheea, and others, keep up a Patsala or school, the pupils of which are supported by the Pundits from the profits of their rent-free village of Lekma, granted by the Nuwab of Oude.

PERGUNNAH SIDHOOA JOBNA.

Isree Pertap Rae, caste Koormee. The ancestor of this family was in the service of the Rajah of Mujhowlee. The family have since acquired many estates, and Isree Pertap Rae, the present head of the family, is a man of great wealth and intelligence.

Baboo Soomerun Sahee, of Bansgaon. The ancestor of this family came from Sohunpore, in pergunnah Mujhowlee. Buhorun Deo and Beerun Deo entered the service of the Emperor of Delhie as sowars, and eventually rose to the rank of Rissaldars. They received an order for their pay on the zemindar of tuppeh Rampore, Seelkunt Bhar, and took possession of all his property and his zemindaree; caste Bagoocheea Bhuinhar.

Birjmohun Gobind Rae, of Ramkola, Tetteha Rajpoot. The ancestor of this family, Bhooal Rae, received Ramkola as a gift from the Rajah of Mujhowlee, and took up his residence there. His sons, Sarung Rae, and Dhurtee Rae, were adopted by Mussumut Soogundhee, widow of the last zemindar of tuppeh Puppour, who made a gift of all her movable and immovable property to them.

Mohun Singh and Dowlut Singh, of Sakhopar. The ancestors of this family received the village of Tendooa in gift from the Rajah of Mujhowlee, and four villages from the Rajah of Nepal; they purchased four others. Their descendants, partly by force and partly by purchase, took possession of the whole of tuppeh Sauree and fixed their residence at Sakhopar. They are called the Baboos of Sauree.

Nursing Singh and Mulhoo Singh, Baboos of Deoreea, Mundour Rajpoots, whose ancestors, partly by purchase and with the assistance of the Rajah of Mujhowlee, obtained this property.

Hunoman Sahee and Runjeet Sahee, Bugoocheea Bhuinhars, Baboos of Bugaha, a branch of the Tumkoohee Rajah's family.

PERGUNNAH SYLHUT.

Hurdut Singh and Ramnaraen Singh, Sirneyt Rajpoots, a branch of the Sutassee family, descended from Nuraen Singh, s n of Rooder Singh, Rajah of Sutassee; the former lives at Rampore, the latter at Moteepakur. They are called Baboos of Singpore.

PERGUNNAH SHAHJEHANPORE.

Sudashen Rae, &c., Baboos of Rampore, Powar Rajpoots. The ancestors of these persons came from Dhura-teekur in the west country and settled at Bulwa, and received several villages from the Rajah of Majhowlee. They purchased others, and their descendants are in possession.

The Rajahs of *Nugger, Nurhurpore, Sutassee* and *Burheyapar*, the Ranee of *Amooha*, and the *Baboo of Bukhura*, became rebels and their estates were confiscated.

LAND TENURES IN THE DISTRICT OF GORUCKPORE.

Birt.—When a zemindar was desirous of bringing any of his villages into cultivation, he made it over on consideration of a sum of money laid down under the name of Nuzzurana, to a person who was then called the "Birtecha." The terms were that the Birtecha should receive one-fifth of the gross collections, and the remainder 80 per cent. was enjoyed by the zemindar, whose authority over the under-tenants remained intact; the Birtecha engaged also to render any assistance the zemindar might have occasion for; it was a description of feudal tenure. At the settlement in 1835-38, entire control over the village and under-tenants was given to the Birtecha, and the zemindar's rights were fixed originally at 20, but now at 10 per cent. in the Government assessment, and paid into the Government Treasury under the head of "Malikana."

Murhee.—This is a peculiar description of mortgage that obtains in pergunnah Suleympore Mujhowlee. A zemindar borrows, for instance, Rs. 100, the interest on this sum is Rs. 12. Land paying rental equal to the interest, and as much more as will pay the Government demand on the whole, is made over to the lender, hence called the Murheedar, and he enjoys possession till the principal is paid off in one sum at the end of any year.

Mareedaree.—This tenure prevails in pergunnah Bhowapar. The private servants of the Rajah of this pergunnah received no pay; their remuneration consisted in a certain quantity of land given to them at low rates in lieu of wages. It was arranged at the last settlement that the Mareedar should pay to the sudder malgoozar the proportion of the Government juma assessable on the extent of his maree, and the remainder of the gross collections he retained. Leases for clearing the forest in Ranee Sohass Koonree's estates in this pergunnah also go by this name, and they are heritable.

Arazeedaree.—The holder under this tenure called the Arazeedar, is one who has either purchased or received in gift a portion of a village. In some instances, the arazeedar pays the Government Revenue assessed on his holding direct into the Government Treasury, in some through the sudder malgoozar.

Murmut.—A village, or any quantity of land granted rent-free by a Rajah to the heirs of a servant killed in battle, goes under this denomination; it is not resumable.

Mooqudmee.—This tenure obtains in pergunnah Havcylee Goruckpore only, and dates subsequent to the last Nepal war. The wastes of tuppeh Sehra (now known as "Jungle Booreedee") were allotted to the Tharoos, who emigrated from the Nepal territory, settled there and re-claimed the land. It is to all effects a zemindaree.

Zemindaree and Putteedaree.—The zemindaree and putteedaree tenures are similar to those in other districts.

TABLE No. I.

EXPORTS by land of Products of the district of Goruckpore, chiefly Westwards to Dinapore, &c.

Articles.	Weight or Number. Cal. Mds.	Value.	Weight or Number. Cal. Mds.	Value.
Course Rice, --- --- ---	75,000	1,20,000	32,000	50,000
Fine Rice, --- --- ---	------	------	8,000	20,000
Wheat, --- --- ---	3,750	4,500	8,000	11,000
Honey, --- --- ---	1,250	10,000	800	5,000
Lac, peepul, --- --- ---	2,500	8,000	1,600	4,000
Kurrail or Dammer, --- ---	62,500	2,50,000	16,000	50,000
Ghee, --- --- --- ---	1,875	24,000	------	------
Oils, --- --- --- ---	1,250	8,000	------	------

TABLE No. II.

EXPORTS by water of the Products of the district of Goruckpore, chiefly Eastwards to Patna, &c.

Articles.	Weight or Number. Cal. Mds.	Value.	Weight or Number. Cal. Mds.	Value.
Catechu, --- --- ---	31,250	2,50,000	16,000	1,50,000
Poppy Seed, --- --- ---	62,500	1,00,000	32,000	60,000
Sugar, --- --- ---	62,500	3,50,000	48,000	2,50,000
Linseed, --- --- ---	62,500	1,25,000	96,000	1,80,000
Rape Seed, --- --- ---	------	------	40,000	75,000
Urhur, Dall, --- --- ---	250	400	16,000	20,000
Gram, --- --- ---	31,250	25,000	16,000	22,500
Fine Rice, --- --- ---	375	600	800	2,000
Barley, --- --- ---	62,500	31,250	48,000	45,000
Saul, square timber, (chauputtas),	------	------	No. 16000	1,60,000
Firewood, --- --- ---	------	------	------	10,000
Charcoal, --- --- ---	------	------	------	5,000
Hides, --- --- ---	------	------	------	1,00,000
Horns, --- --- ---	------	------	------	10,000
Fat, --- --- ---	------	------	------	10,000
Koinda, (dried seed of the Muhooa tree,) --- --- ---	------	------	800	1,000
Caster Seed, --- --- ---	------	------	3,200	4,000
Indigo, (to Calcutta,) --- ---	1,000	2,00,000	------	------
Opium, (to Ghazeepore,) ---	12,000	*15,60,000	------	------

* Price paid by Government to the growers.

TABLE No. III.

Exports through the district of Goruckpore of the Products of the Nepal Hills.

Articles.	Weight or Number. Cal. Mds.	Value.	Weight or Number. Cal. Mds.	Value.
Peepul, long pepper, --- about	2,500	40,000		
Peepuramoor, root of the long pepper tree, --- ---	12,500	1,00,000	8,000	50,000
Tejpat, bay leaf, --- ---	62,500	1,25,000	8,000	10,000
Large Elachee, Cardamoms, ---	1,250	14,000	1,600	25,000
Tinkar, Tincal, Crude Borax, ---	5,000	20,000	------	------
Kootkee, Hellebore, --- ---	5,000	32,000	6,400	4,000
Sufed Sonth, white Ginger, ---	12,500	60,000	90,000	1,20,000
Paharee ditto Hill ditto ---	62,500	4,00,000	6,400	32,000
Munjeeth, Madder, --- ---	500	2,000	------	------
Dhar Huldee, Turmeric, ---	5,000	16,000	320	2,500
Rawund Cheenee, Rhubarb, ---	2,500	8,000	320	2,500
Uttees, a medicine, --- ---	250	24,000	320	2,500
Cheryta, Do. --- --- ---	10,000	70,000	8,000	40,000
Wax, --- --- --- ---	2,500	64,000	1,600	20,000
Ghee, --- --- --- ---	2,500	32,000	1,600	25,000
Jethoemudh, wild liquorice root,	2,500	20,000	320	4,000
Soogund-bala, a fragrant wood,---	5,000	16,000	3,200	10,000
Bamboo Paper, --- --- ---	5,000	64,000	1,600	20,000
Sohaga, Borax, --- --- ---	2,500	20,000	1,600	16,000
Bhungra, thick cloth for bundles,---	12,500	1,50,000	------	5,000
Toos, thick durable blanket, ---	50	1,250	------	2,000
Chowrees, cows tails, ---	[illegible]	2,500		1,000
Kuttasingee, a medicine,--- ---	1,250	8,000	160	1,000
Dhoop wood, for burning incense,	12,500	20,000	8,000	------
Puddoom, a wood, --- ---	12,500	20,000	1,600	------
Hill Iron, --- --- ---	62,500	2,00,000	16,000	40,000
Copper Pice, --- --- ---	5,000	1,76,000	3,200	90,000
Lall Mirch, bird's eye chilly, ---	5,000	32,000	3,200	20,000
Nafey-mooshk, --- --- ---	------	------	------	1,000
Copper vessels, --- --- ---	5,000	2,80,000	2,000	40,000

TABLE No. IV.

Imports into the district of Goruckpore, chiefly from Calcutta, by land and water carriage.

Articles.	Weight or Number. Cal. Mds.	Value.	Weight or Number. Cal. Mds.	Value.
Gurree, dried cocoanuts, --- ---	62	1,000	40	1,000
Almonds, --- --- ---	62	600	80	1,000
Dates, --- --- ---	240	1,200	320	1,200
ElacheeGoozratee, small cardamoms,	2¼	480	3 md. 8 srs.	700
Raisins, --- --- ---	25	400	40	500
Betelnut, --- --- ---	1,000	8,000	2,400	15,000
Black Pepper, --- ---	1,000	16,000	1,600	20,000
Cloves, --- --- ---	125	2,500	240	4,000

TABLE No. IV.—(*Continued.*)

Imports into the district of Goruckpore, chiefly from Calcutta by land and water carriage.

Articles.	Weight or Number. Cal. Mds.	Value.	Weight or Number. Cal. Mds.	Value.
Sonth Dukhinee, dried ginger, ---	125	500	800	3,000
Cotton, --- --- --- ---	5,000	44,000	6,400	80,000
English Thread, --- --- ---	12½	800	160	10,000
Kharooah Cloth, --- --- ---	250	10,000	160	5,000
Lac Choorees from Benares, &c. ---	1,250	4,000	------	1,000
Poorbee Iron, in pigs, sheets, rods, nails, &c. --- --- ---	5,000	32,000	16,000	80,000
Brass and composition vessels, ---	2,500	1,20,000	3,200	1,00,000
Lead, in pig, --- --- ---	5,000	48,000	320	2,000
Ranga, tin, --- --- ---	1,250	40,000	800	20,000
Justa, zinc, --- --- ---	5,000	48,000	1,600	15,000
Bukkum, logwood, --- ---	5,000	16,000	800	2,000
Salt, --- --- --- ---	------	-----	16,000	80,000
Cotton Goods of all kinds, ---	200	40,000	E. 1,600 N. 800	1,50,000
Umbrellas, --- --- ---	------	------	------	3,000
Nariel Hookkas, --- --- ---	------	------	------	200
Tea, --- --- --- ---	------	------	------	1,000

Memoranda on the Forest and Fruit Trees in District Goruckpore.

Sals or Sakhoo is used for house and boat-buildings; the fruit is dried and ground and mixed with grain flour and used as food by the poor in times of scarcity. Carts, oil and sugarcane mills and boxes are made of it, the leaves are made up into cups called "Donas" by a caste called "Baree," and the saul tree is especially necessary at Hindoo marriages when offerings are made to the forest gods. Saplings and straight branches cut during the rains, are used as rafters, and are called "Pukkeeas Koroes," and they are often immersed in water two or three weeks when cut at other times. Young trees or branches of 6 to 9 inches diamater are used as posts ("khumbhas;") the sap wood of the part in the ground decays in a short time, but the heart remains sound, and if taken out several years after is still green. Saul of large girth was formerly found plentifully in the northern portion of the district, but the supply of good trees has failed every where, except in the Government preserves, and in a small piece of the forest in the Bansee pergunnah near the village of Chatteah.

Sheshum or Sissoo is found in the eastern part of the district in small quantities. There are some large trees in other parts. The supply from the Nepal forests is very small.

Toon is found in the same parts as the Sissoo.

Usna is used in building as beams and rafters, it will not stand exposure to wet. The bark mixed with the leaves of the "Aonra" tree and Kunkur lime or the ash of the koossoom tree is used in tanning. When dry, this wood is difficult to saw; the sapling make strong clubs.

Kurma, a yellow wood is also used in building, it is sawn up into planks, and boxes made of them are used in packing indigo and opium; it is not durable.

Tekooee, a better description of the kurma, used in building and in making boxes. Combs are manufactured out of it for the use of the natives.

Tend, yields ebony of which rulers, small boxes and combs are made, and the fruit is eaten by the natives.

Hurra, the fruit of this tree gathered young and dried forms the "jungee hurra" of native commerce, and the full grown fruit is called the hurra; they are both used in the "karhas" or purgative infusions administered by native doctors. As timber it is very durable and used for various purposes.

Buheyra, the wood is worthless; the fruir is used medicinally.

Aonra, the leaves are used in tanning and the berry is preserved. Many Hindoo families make it a religious observance to cook and eat their food under this tree once a year, or on certain occasions. The Aonra does not grow high, and is not used as timber.

Khyr, catichu produces the catichu or kutha, which is used in dyeing, and with "pan" and betelnuts.

Bel grows both wild and in gardens. Sherbet made of the ripe fruit is efficacious in dysentery; the wood is very strong and durable.

Koossoom, a very hard and inflammable wood used in making "jats" for pressing oil and sugarcane; the fruit is eaten and has a slightly acid flavor.

Lussora, a large tree used for various purposes and possesses medicinal qualities.

Kaynkur generally becomes hollow after growing to a certain size, when split up it is considered the most durable kind of wood next to saul that can be used for the layer of chailas ... een the rafters and the tiles in a tiled roof.

Khajha is used fo ... rious purposes.

Muhooa, bassia latifolia. From the flower of this tree is extracted the common country arrack; the fruit called koindee, yields a thick brownish oil considered efficacious in headaches; the wood is used for beams and boxes are sometimes made of it. Rajpoor in pergunnah Russoolpoor Ghous is a forest, consisting principally of this tree which is found in most parts of this district.

Jamoon bears the smaller blackberry; the timber is used in building and for "nawars" for wells.

Phureynd bears the larger blackberry; it is used similarly with the above.

Kuth Jamoon grows along the banks of nullahs and the smaller rivers.

Suksal makes very neat furniture, but is now extremely rare.

Bijeesal, as the above; native drums and fiddles are also made of this wood.

Chap, a white wood, but durable, answers capitally for picture frames, boxes, &c., buggy-shafts are also made of it.

Parur is used for buggy-shafts, plough yokes, and various other purposes.

Khumbhas is extremely scarce, similar to the chap, but of much superior quality.

Pakur is used for native palkee pannels.

Bhoorkoor is a very light white wood, coarse almirahs and native palkee pannels are made of it.

Puhlol and Amhar difficult to saw; furniture is made of them, but they are very scarce now.

Metkooree takes a high polish and is good for furniture, but is very scarce.

Panun does not grow straight, but is strong and used for various purposes.

Banjhee similar to the "panun" axle trees for native carts are made of it.

Deodar similar to the chap, but not so strong.

Penrar is generally found in the out-kirts of forests; the fruit when green is cooked and eaten by the natives.

Punneeha grows in low situations; the wood is used in "nawars" for wells, and the berry under the name of "Sumoondur-phur" is sold by the Punsarees.

Pras, the flower called Tasoo, yields a yellow dye, the berry named "Prasbanda" is used medicinally.

Ayl, a large bush, charcoal made of it is used in the manufacture of native gunpowder.

Peepul, ficus religiosa, the sacred tree of the Hindoos.

Bur or Burgud, the banyan tree, paunels for native palkees are made of it.

Samul, the cotton tree, the roots of young saplings, called Samur-ka-moosra are used medicinally.

Baobherung, a small bush, the berry is used medicinally.

Amiltas, the fruit is used in purgative mixtures.

The mangoe, jack, plum, guava, lime, custard-apple, pomegranate, goolur, neem, tamarind, kurrounda and mulberry are common, the peach, lecchee, wood-apple, sour krout, punneeala, kumrukh, nashpatipear, kuddum and moulsree are found in many places. Goruckpore is celebrated for pineapples which are exported to Azimgurh, Jounpore, Benares, &c.

Burhur, a magnificent tree, the fruit is eaten by the natives.

Khirnee, a large tree, produces a berry of a small size, slightly acid in flavor.

Cuchnar celebrated in Hindoo Song for its pretty sweet scented flowers, which are also cooked and eaten by the natives.

Bukkain, infusion of the leaves and flowers is considered effective in rheumatism.

Meoree, a small tree, infusion of the leaves applied for rheumatism.

Suheejun, infusion of the leaves good for rheumatism.

Moolchullee, a small tree with scented flowers.

DYES OF GORUCKPORE.

Koossoom, the flower of the berry plant yields a fine pink dye.

Leel, indigo.

Hurra, the full-grown fruit of the Hurra tree yields a pale yellow.

Toon, the flowers of the Toon tree yield a fair yellow.

Hursingar, the flowers of this tree gives the same color as the Toon.

Tasoo, the flowers of the Pras tree yield the dye called "Kuppasee."

Boorhna, an infusion of this grass mixed with jatamassee, camphor, anghee, and kuchoor affords a khakee dye.

Turmeric is extensively used by the poorer classes of the natives in dyeing their clothes yellow during all the year round, but especially on marriage occasions.

Table of average price of Grain, Sugar and Ghee, seer of 80 sicca weight.

	Wheat.			Barley.			Gram.			Jowhar.			Moossoor Dall.			Rice, fine.			Sugar.			Ghee.		
January, ---	0	27	0	1	2	0	0	21	0	0	39	0	0	30	0	0	17	0	0	7	8	0	3	0
February, ---	0	27	0	0	36	0	0	20	0	0	37	8	0	30	0	0	16	12	0	7	8	0	2	4
March, ---	0	30	0	1	5	0	0	20	0	0	36	0	0	30	0	0	17	0	0	7	8	0	2	1
April, ---	0	31	0	1	5	8	0	31	0	0	35	0	0	30	0	0	16	8	0	7	8	0	1	11
May, ---	0	29	12	1	9	0	0	28	0	0	35	0	0	30	0	0	16	0	0	8	12	0	1	10
June, ---	0	29	12	1	3	12	0	28	0	0	35	0	0	27	0	0	17	0	0	8	12	0	1	8
July, ---	0	29	12	1	0	8	0	28	0	0	35	0	0	27	0	0	19	4	0	4	8	0	1	12
August, ---	0	29	12	1	0	8	0	26	4	0	35	0	0	27	0	0	19	8	0	4	8	0	1	12
September,	0	28	0	0	38	8	0	24	8	1	3	12	0	25	0	0	17	8	0	4	2	0	1	12½
October, ---	0	26	4	1	2	0	0	22	12	1	2	0	0	24	0	0	17	8	0	4	1	0	2	1
November, ---	0	26	4	1	3	12	0	22	12	1	2	0	0	25	4	0	17	8	0	4	2	0	2	1
December, ---	0	26	4	1	2	0	0	21	0	1	8	0	0	24	0	0	17	8	0	4	2	0	2	4

BAROMETRICAL TABLE.

Shewing the Temperature at the Charitable Hospital and Dispensary Station Goruckpore; from July 1860 to June 1861.

Months.	Average Temperature at			
	Sunrise.	10 A. M.	4 M. P.	10 P. M.
July, 1860.	82·18	86·93	125·83	85·41
August, "	82·16	89·22	90·78	84·67
September, "	80·63	89·06	91·7	81·93
October, "	72·41	82·83	85·57	78·22
November, "	59·56	71·06	77·56	65·53
December, "	50·06	63·16	59·25	62·74
January, 1861.	59·29	62·58	67·83	58·4
February, "	53·71	66·	70·21	61·07
March, "	63·29	77·7	80·3	67·87
April, "	77·6	89·16	97·9	71·8
May, "	81·9	90·6	99·2	81·95
June, "	81·3	86·06	92·3	84·06

Meteorological Table, May 1859 to April 1860.

Months.	
May, 1859.	2.07
June, "	24.39
July, "	22.35
August, "	4.72
September, "	9.49
October, "	4.21
November, "	0
December, "	.02
January, 1860.	0
February, "	.02
March, "	.04
April, "	0

Notes on the Soils, &c., of Zillah Goruckpore, by G. Osborne, Esquire.

The various soils of Goruckpore may be classed under four general heads.

Bullooa. I.—Balloon or bala, known by both names and tinted red in the Map accompanying, is the most sandy soil in the district and requires constant irrigation for the winter crops.

Dorus. II.—Dorus or bangur is a dry silicious soil, with more sand than clay. It is tinted yellow in the Map, and requires irrigation, but not to the extent bullooa soil does. From the extreme porosity of this soil, the waters of the streams, which are numerous, percolate in every direction under ground, and numberless instances may be seen where a shallow excavation to the depth of a very few feet only will form a temporary well sufficient for one season's irrigation, and it costs about six or eight annas.

Mutteeara. III.—Mutteeara, containing still more clay than the dorus, and of course more retentive of moisture. It is tinted a pale lilac, merging into blue and green as it approaches nearer to and assimilates with the bhat soils.

Bhat. IV.—Bhat, this term is provincially applied to lands not requiring irrigation for the production of cereals and other winter crops, but in the more eastern parts of the district it is also applied to soils containing an unusual proportion of lime in their composition. This description of soil appears peculiar to the country adjacent to the great Gunduck, and differs much from the soils in the vacinity of the Gogra.

It has been remarked by Mr. Liston that the little Gunduck may be considered as the boundary of the Bhat or calcareous deposit to the west. As this description of soil does not obtrude to the left (west) side of the river in its whole course, beyond what may have been an old bed of a river, or where back water may have been stagnant during wet seasons, or in fact, the characteristic of the soil bordering on the little Gunduck may be considered as calcareous when nearest the great Gunduck, but silicious as it approaches the Rewa or Gogra.

Bangur.—The soil called "Bangur," bordering on the Gogra and its feeders, is of a dry silicious nature, requiring irrigation for the production of winter crops, whilst the lands bordering on the Gunduck and its feeders is termed provincially Bhat.

The gradual rise of the soil may be attributed to the innumerable sandy deposits of former periods; and as each successive inundation deposited its appointed amount of silicious matters, the present very sandy nature of this portion of the district may be easily accounted for. The Gogra has brought down its quota of sand from the westward and northward, and the great Gunduck its contribution of calcareous matter from the eastward and northward, to be deposited on the ancient original alluvium and diluvium of the immense tract skirting the base of the mountains of Nepal. The colored Map will show the various soils and their relative positions.

But the spreading of one sheet of silicious matter from the west and north by the Gogra (aided perhaps in some lesser degree by the Raptee and its feeders,) and the spread of another sheet, consisting chiefly of calcareous matter from the north and east by the great Gunduck, does not account for certain little eminences or knolls observable in some parts of the district, and partial alternations of soil in others. Mr. Liston observes, "north of Sulempore and on the left (west) bank of the little Gunduck small eminences abound; these have generally been selected as sites of villages and are of silicious earth, whilst the lower lands are "Bhat." They are also found in pergunnahs Dhoorecapar, Bhowapar, and Anowla, but are comparatively very rare in the more northern parts of the district. The bangur or silicious countries undulate more than the calcareous districts, and the water shews a disposition to collect into shallow lakes. The water in the Bhat countries rather affects to form itself into streams.

In calcareous damp lands goitre prevails. Biniodide of mercury is the remedy for this disease. Idiots are common, and in general the people are feeble in mind and in body, compared with the residents of the more silicious tracts.

Undulation of the country judged from the depth of wells.—In the Goruckpore district water is often found in the cold season at from five to six feet from the surface, and in no instance have I found a brick well deeper than 29½ feet to the bottom of the excavation, with 14½ feet of water in it. The greatest depth of water found in any well was at Mughur, in pergunnah Mughur, the water being 15 feet from the surface; and the shallowest "pukka" well found was at Dutnuggur, between Belwa and Amorha, in pergunnah Amorha, which was only 12 feet at the deepest part, with 4 feet of water. The highest parts of the district, judging from the depth at which water is found, are west of Bukheera in pergunnah Hussunpore Mughur, where the well is 22½ feet deep and the water 17 feet from the surface. Mughur (in the same pergunnah) well 29½ feet deep, water 15 feet from the surface; Captaingunj in pergunah Amorha, well 16 feet deep, water 12 feet from the surface; and the City of Goruckpore, well 18½ feet deep, water 11 feet from the surface; whilst the lowest parts of the country would appear to be at Roodhowlee, pergunnah Hussunpore Mughur, well 14 feet deep, water 5½ feet from the surface; Dutnuggur in pergunnah Amorha, well 12 feet deep, water 8 feet from the surface; Amorha in the same pergunah, well 13 feet deep, water 9 feet from the surface. At Bustee, in pergunnah Monsoornuggur Bustee, the water is about 6 or 7 feet from the surface but in a well constantly used the water was 14 feet in depth.

The well water at Bustee and Goruckpore corresponds with about 6½ degrees according to Professor Clark's scale of hardness, in which he considers one grain of chalk per gallon to constitute one degree of hardness. The Bustee well water contains 6½ grains of chalk per gallon, and may therefore be considered as soft water in comparison with the Thames. The hardness of water may be easily corrected by adding small quantities of alum or of carbonate of soda. In addition to the

carbonate of lime, the water contained 3¼ grains of carbonate of iron and 1¼ grains of magnesia per gallon.

Wherever excavations are made the sand formation is sooner or later met with, but the depth of the superimposed culturable soil is very variable, as are also the depth of the sand strata so often found, especially in the vicinity and beds of streams.

Yellow soil formation.—Below the surface of the soil in those parts of the western district subject to periodical inundation, especially in a direction parallel to the Gogra, a formation of a peculiar yellow ochreous soil would be found to exist. It may be seen not far from the surface between Bukheera and Roodhowlee. At Bustee it is less perfect, and in a thinner stratum at and near the station of Goruckpore, in some places at varying depths. It crops out occasionally along the whole length of the Kooàna up to or near Shahpore in pergunnah Dhooreeapar, to the south of which, if it exists, it must be at depths too great for occasional or accidental observation.

Its presence, however, at the points mentioned seems to warrant the conclusion that it is a distinct formation varying in thickness from 2 to 12 feet, more or less continuous. It may perhaps be studied to greater advantage along the course of the Kooana than in any other direction. It is occasionally to be found on the surface, generally at depths of from 2 to 5 or even 10 feet. At Kukruha Ghât on the Kooana it is about 10 feet or so in thickness, further on at Burpurwa the stratum is close upon 20 feet or more in thickness, at Belghat on the Kooana, two distinct strata of this ochreous soil are apparent, divided by a stratum of black clay of about 3 or 4 feet in thickness. This goes far to prove two distinct deposits of the yellow earth with an intervening one of black clay, the whole being superimposed upon a stratum of sand mixed with clay, kunkur, and shells to an unknown depth.

The ochreous soil, then, is not a continued stratum of uniform thickness, although it may be spread under a considerable tract of the country. The peculiarities of its formation would seem to warrant its being classified as a diluvium, deposited on the original alluvium. As this great wave progressed it seems to have become more and more attenuated as it commingled more or less with the previously existing alluvium, the purity or distinctness of the yellow tint becoming more and more contaminated, until at length it is lost altogether in the silicious or other soil of the country.

Microscopic examination of this yellow ochreous soil will show it is composed chiefly of alumina deeply tinged with per-oxide of iron and minute fragments of quartz, mica or talc and felspar, that is, disintegrated granite. The quartzose fragments, not larger than pin points are variously colored, white, glossy, more or less yellow; the felspar of varied hues of pink and white, the mica more or less black; there is also in some cases a slight proportion of saline matter, but this of course must depend upon the locality whence taken. I found on the top of the Vindhyan range the same quartzose formation at an elevation of about 1,500 feet. In some places the color of the earth is purer than at others; where the deposit is many feet in thickness, the color is deeper, where it is only 2 or 3 feet thick it is of a lighter color, because it is in a drier state than the thicker deposits.

The formation holds but very few if any shells, except of recent date and of existing species. It does, however, contain two distinct sets of small irregularly

rounded nodules; one with a blackish powder internally, resembling fine iron filings, adhering strongly together, sectile at time of excavation as the native codalee or spade cuts quite through them when in situ, covered with a harder crust of silicious matter and metallic oxide. This darker variety is often to be met with as a kind of gravel from which the soil has been washed away by the river and is to be seen at Deoram, at Salgunj and other places, where the surface has been exposed to the action of running water. It is often to be found in the beds of small ravines and might possibly be collected in quantities if required for any useful purpose. The other whiter variety was to outward appearance composed mostly of a kind of kunkur. Some of these nodules were of the size of peas, the largest did not exceed the size of a hazel-nut or pistol bullet. Sometimes they were found aggregated together in groups, at other places yards apart. On analysis their composition was found to be as follows:—

	White Nodules.	Black Nodules.
Water of absorption, --- --- --- --- --- ---	2.0	3.5
River sand,--- --- --- --- --- --- --- ---	12.0	62.0
Silicate of Alumina and of Iron, yellow ochre, --- --- ---	42.0	15.0
Carbonate of Lime, --- --- --- --- --- ---	19.0	3.0
Alumina, --- --- --- --- --- --- --- ---	24.0	3.0
Protoxide of Iron, --- --- --- --- --- --- ---	a trace	13.0
Manganese,--- --- --- --- --- --- --- ---		1.0
Total, ---	99.0	100.5

In the black nodules traces of baryta were also found. The marked difference between the two specimens found in the same locality is very extraordinary. The silicate of alumina and iron resembled in every respect fine yellow ochre, and no doubt abound throughout the whole of this yellow soil formation. The best spot for viewing the several strata is about Belghat on the Kooana, below the old ruins of a musjid, perhaps now fallen into the river from the annual undermining of the banks; the stratification there may be thus seen:—

Upper yellow formation from, --- ---	10 to 12 feet.
Black clay, --- --- ---	3½ to 4 feet.
Lower yellow formation, --- --- ---	2 to 4 feet.

Sand with clay, kunkur, shells to a depth unknown, but the yellow strata is seen in larger quantities at or about Kukruha Ghât.

The question might arise how came these strange concretions in the yellow ochreous formation, have they been brought from a distance when the ochreous formation itself was deposited, or have they been gradually forming under the same influences that kunkur limestone is formed. The specific gravity of these nodules is too great to suppose them the effects of any alluvial deposit, in which case its presence can only be accounted for as portion of a diluvium, transported from some distant source. The black variety is probably a kind of very poor iron ore. Its rounded or spherical shape is an argument in favor of its having endured much attrition and been rolled from a considerable distance.

Black Fire-clay.—The black clay is an interesting feature in the above formation. It is not constantly present and seldom exceeds 3 or 4 feet in thickness frequently not more than the same number of inches. It is composed chiefly of

of Alumina with protoxide of iron and sand, when it occurs below the second yellow strata, it has less clay but more sand in its composition. In many places it is thickly studded with shells of existing river species, and this may be traced for miles. This formation shews, from the preservation of the fragile river shells, how recently (geologically speaking) it was deposited. At Bubbonee-ka-ghat the surface soil is very yellow, then comes the black clay as a mere line, below this is a bed of sand, the substratum being black sand, with scarcely any clay, containing shells and red spots resembling carbonate of iron.

Whether the black clay approaches the nature of the "regur soil" of Southern India remains to be determined, but it appears to possess in some degree the qualities of a fire clay some of it was made into small crucibles and exposed to the intense heat of a large wood fire urged to the utmost. On cooling the color remained a light dun, not at all red like common potter's clay of the country. It might perhaps answer for fire bricks, as the little crucibles were exposed to repeated trials in an intense heat, without becoming brittle or fracturing on cooling.

TABLE OF ANALYSES OF GORUCKPORE SOILS.

	Bustee Soils.		Suleympore Soils.			Remarks.
	Silicious Bulloa I.		Dorus Bangur II. by Mr. Liston. *	Muteeara III. Stiffer. *	Bhat IV. Calcareous. *	
	Bulloa.	Bala.				
Water of absorption,	2.50	3.0	1.75	5.30	3.25	*,* Nos. II, III, IV.
Animal matter, ...	3.00	2.2	2.75	3.50	2.50	Analysis by Mr. Liston.
Vegetable extract, ...	0.25					
Sand, ...	87.80	84.1	80.00	71.25	57.75	89·00 Chunar sandstone.
Oxide of iron, ...	2.80	3.2	2.20	2.75	0.25	3·15
Alumina, ...	2.75	5.1	9.75	13.60	7.00	4·50
Carbonate of Lime,...	1.50	2.3	0.20	1.00	25.30	1·23
Magnesia, ...	.....	...	0.25	0.50	2.00	
Total, ...	100.60	99.9	96.90	97.90	98.05	97.88
Loss, ...	.....	0.1	3.10	2.10	1.95	2.12 water, &c.

Kunkur.—Amongst the sands of the lower part of the yellow formation, kunkur may be observed cropping out and strewn about in all directions. As the formation of kunkur below the surface in most districts of India has always been an interesting subject of enquiry, the following opinion is hazarded as to the *modus operandi* in the laboratory of nature. It is known that lime and some other earths are very soluble *in excess* of carbonic acid when so supersaturated with the gas forming

bicarbonates whilst the common neutral carbonate of lime, whether as marble or chalk is utterly insoluble in water. Thus it is that nature dissolves calcareous masses collected and deposited by the waters. When such waters, by exposure to the air, lose that quantity of carbonic acid which favored the solution of the lime, deposits are formed, hence stalactites and incrustations found in caverns, springs, and even the foliaceous calcareous strata of rocks, which without doubt have been held in solution. When such waters suddenly lose the acid essential to its solution, there is an irregular precipitation, but if the waporation of the carbonic acid gas takes place slowly, it produces crystallization more or less perfect according to the rate of the escape of the gaseous acids, hence the stalactites of caverns, &c. All this proves that corbonate of lime cannot be dissolved in water, except by the aid of carbonic acid in excess.

Pisiform Kunkur.—There are at least two, if not three distinct varieties of kurkur to be seen, one of which, a singular formation, has been called the pisiform variety, it is in peculiar irregular bullet form nodules varying from quarter of an inch to an inch in diameter; they run into and join each other as if cast into an

NATURAL SIZE.

imperfect mould in long perforated bands. This variety contains about 61 per cent. of sand with 22 of lime, and is evidently untravelled and the result of the action of lower springs overcharged with silex in solution in excess of carbonic acid.

Laminated Kunkur.—Another variety of sand kunkur may be called laminated, it is in irregularly shaped slabs often perforated or full of cavities; these slabs are sometimes three feet long by four to six inches broad, but are of no use except to be broken up for road making. It forms, at times, a kind of river beach, subsiding lower and lower every year as the sediment is washed from below it, the heavier kunkur of course remaining or sliding into the lower parts of the river's bed. This variety might be traced in many places along the Kooana, and also on the north bank of the Gogra, the edges cropping out with some appearance of stratification. In all probability it is continually increasing from fresh deposits of the generating springs full of bicarbonates of silex and lime in solution from below.

A modified form of the above often affects the cylindrical shape, and at a distance looks like a collection of old bones; these are more broken up whilst the laminated variety appears like grains of agglutinated sand, the kunkur in the lower parts of the banks appears of but recent formation, whereas the higher deposits of kunkur are older, more compact and contain more lime. Such is often found close to or below the surface of the upper soil, all over the kunkur bearing districts in beds of from one to three feet in thickness. This variety is the more valuable from its richness in lime, the best kunkur ought to yield from 70 to 80 per cent. of carbonate of lime, whereas, the sand kunkurs just described will not yield more than from 22 to 32 per cent. of the carbonate.

Another slight variety of sand kunkur may be found in some places in the higher banks of the Kooana about Kukruha ghat and other places. It has a some-

what stratified appearance when in situ or in cubically shaped blocks, but they are more or less perforated, and full of cavities containing clay or soil. It does not appear to add to the stability of the banks when assailed by the force of the river at its height.

A very superior description of Kunkur was discovered at a place called Bemeria, in pergunnah Aurungabad Nugger on the little munnorama, about five or six miles south-west of Captaingunj, in conjunction with a deposit resembling marl, this kunkur afforded 80 per cent. of carbonate of lime, which is perhaps the utmost ever obtained from the best calcareous kunkur.

TABLE OF ANALYSES OF KUNKUR.

	Deposit of Marl per cent.	Goruckpore Kunkur.			Mirzapore Kunkur.	
		Marl deposit.	Pisiform variety of sand kunkur.	Luminated variety of sand kunkur.	Near Chunar.	Mr. Prinsep's Analysis.
Water of absorption,	1.00	1.00	3.00	1.00	3.00	1.40
Soluble matter, ---	1.50	from one to two per cent.				
Carbonate of Lime,	62.00	80.00	22.00	32.25	68.00	72.00
Sand, ---	26.00	1.00	61.00	53.00	14.18	15.20
Aluminous matter,---	8.00	12.50	8.70	11.00	6.72	10.00
Oxide of iron, ---	1.50	3.20	1.50	1.50	1.25	
Baryta, ---	0	0	0	0	4.50	
Magnesia, ---	0	0	0	0	0	0.40
Total,--	100.50	97.70	96.20	98.75	97.65	99.00
Loss, ---	---	2.30	3.80	1.25	2.35	1.00

Theory af the formation of Kunkur.—Earths in a pure caustic states are almost all more or less soluble in pure water, whilst their carbonates are utterly insoluble, their bicarbonates again are yet more abundantly soluble in water, that is under pressure, and excluded from the action of the external atmosphere. This may appear sufficient to account for the formation of kunkur. Below the surface, subject to the great pressure of the superincumbent soil, and excluded from the action of air, water, surcharged with carbonic acid gas, extricated from sources deep below, will chemically unite with lime wherever met with, forming the bicarbonate, which will thus be kept in a state of solution, attracting in its course, any alumina, (which according to chemical writers, possesses so powerful an attraction for lime and silex), until it arrives under the influence of the atmosphere. No sooner is this the case, than the surplus carbonic acid is at once disengaged, crystalization more

or less perfect occurs, according to the rapidity or slowness with which the carbonate approach the surface or its influence. It will then envelop within its crystal sand, shells, alumina, or whatever may happen to come in its way. The peculiar form it may assume will depend much on the porosity of the soil through which it will have to percolate. If the surface happens to be the banks of a river lower than the general level of the surrounding country, the progress of the soluble bicarbonate will be greater and quicker than when it has to work its way upwards to the general level of the plains. In this case, when met with at some four or five feet below the surface of the plain, it will be found in a more regular crystallized state, and less mixed with river sand, than when it finds its way towards the beds of rivers, where, of course, it is more likely to be found, as the lime in solution will naturally endeavour to travel to the lowest level.

Another fact which contributes its rapid solidification on approach to the surface is the peculiarity which kunkur possesses of retaining water but feebly, seldom above two or three per cent. This contributes materially to its formation, for whenever the soluble bicarbonate approaches the surface and comes into contact with air, it begins to harden; it is thus as likely to be formed under the surface of water as readily as under the surface of land. The superfluous carbonic acid will be imported to the rivers, and the kunkur or sub-carbonate at once assumes more or less its usual crystalline form.

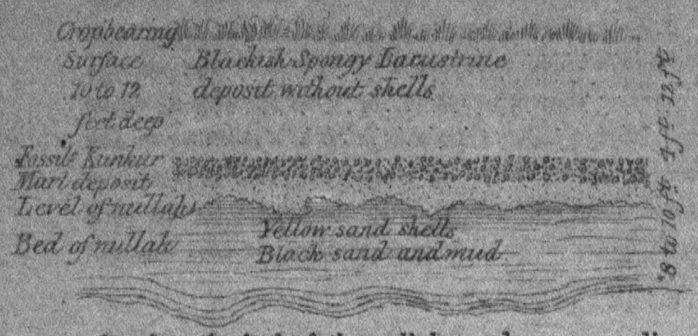
Professor Clarke's theory regarding the purification of water by the aid of bicarbonate of lime, supports my view of the formation of kunkur: he adds it to lime water and crystals, of kalk spar are deposited. Carbonic acid in a great measure soluble in water, perhaps more so in well water. If half an ounce of sub-acetate of lead be added to twenty ounces of clear well water of the district, (Bustee) a precipitate of carbonate of lead equal to about 3¼ grains of carbonic acid, or a little above six cubic inches of the gas, will be found in 20 ounces of well water.

Saltpetre.—Saltpetre was never manufactured to any very great extent in district. The soil, however, is of a decidedly nitrous character along the left banks of the Gogra between Belwa and Gola Gopalpoor, the first locality in pergunnah Amorha, and the latter in pergunnah Dhoorceaparch; in former days, a small native saltpetre manufactory, of the most primitive description was seen at work at Shahpoor, pergunnah Dhoorceaparch, not far from the banks of the Gogra.

Ochreous Marl.—This marl deposit at Bemeria appears to be the only one yet discovered in the district. The surface soil of this formation bears the usual Rubbee crops in tolerable abundance, then comes a black semi-tenacious soil, possibly a lacustrine deposit of about ten to twelve feet in depth, only it does not contain shells; below this comes a streak of calcareous and fossiliferous kunkur, covered in the cold weather with a fine white efflorescence of carbonate and sulphate of soda.

Below the lacustrine deposit is the shell bearing ochreous marl formation. It appears to agree with the supercretaceous group of De La Beche or upper fresh water formation of other writers, containing recent fresh water limneæ and planorbes, the latter of which are present, both in the marl to the extent of about 2 per cent., and as fossils in the kunkur, but in lieu of the limneæ the succineæ may be discerned.

OCHREOUS MARL FORMATION.



The Marl formation varies from 3 or 4 inches to as many feet in depth, and contains 62 per cent. of carbonate of lime with about 26 of silicious matter, an useful adjunct perhaps so far as the same would be required for building purposes. The marl reposes on a bed of yellowish sand with shells resting on a black muddy sand forming the bed of the nullah, and corresponding in all respects with that already described, as forming the lower stratum of the Kooana, and probably its bed.

This deposit has been called an ochreous marl for want of a better term. It bears no resemblance in external appearance to the more solid marl formation of England. This is not sectile, has no adhesiveness, but is a yellowish sand of a crumbly nature. Nevertheless, the formation is worthy of a more minute examination, as it is not very likely such an interesting formation should be the only one in the district, or that it does not extend beyond the one little locality in which it was discovered. See analysis of this deposit in a preceding page.

Umuhut shell deposit.—There is a singular deposit of shells, horns and bones, with other remains which was accidentally discovered in 1846, whilst in search of kunkur for the erection of the bridge at what was then called Umuhut ghat, on the Kooana, about 3 miles west of Bustee, in pergunnah Munsoornugger Bustee. These remains consist of a confused collection of the common fresh water muscle of the rivers and lakes, chiefly of the former, fossilized, hardened, and cemented into masses difficult to break up; these masses are sonorous, extremely hard, and sharp on the edges. The lower portions of this strange collection were much harder and more fossilized than the upper layers. It was also observed, that the shells were not in pairs as if the animals had died in that locality, they were in that confused state, which leads to the supposition that the entire mass had been swept down from a higher source by the agency of running water. There were but few river univalves in the collection. The great heavy masses were so strongly agglutinated together as with great difficulty to be separated, and were entirely composed of bivalves of the smaller kind, the common "seepee" of the natives.

The fragments of horns were almost exclusively those of the larger deer, they were not entire, but many were cut into lengths of from 4 to 8 inches; in some of the horns circular cuts only were to be seen, but very distinct, about 1-10th of an inch or so all round, as if the object had been to cut through them. These were also mostly fossilized, interstices and caveties of some, when broken into were found full of minute brilliant crystals of carbonate of lime; there were also, more or less indurated, a few antlers of the common spotted deer of the present day.

The bones consisted of portions of human skulls and jawbones of large animals supposed to be of elephants, camels or buffaloes, no vertibræ, a few rib bones with shells so firmly cemented to them, as not to be separated without con-

siderable violence; the cavities of the bones were also filled with sparkling crystal of carbonate of lime, the skull bones were not so greatly indurated as the bones of the animals. The bones and horns however, bore but a very trifling proportion to the great mass of shells.

The only remains of human handicraft discoverable were two fragments of figures carved out of hard stone, much harder than the sandstone of the Vindhyan range, south of the Ganges. The original form of one was egg shaped, and about four inches in length. The fragment preserved is figured in the margin, it must have been broken up by great violence; the shape of the other fragment was more cylindrical, only a few inches in length, but of the same hard stone as the egg shaped fragment, both have subsequently been lost. I do not think this fossil deposit is of very ancient date.

White efflorescence.—This efflorescent substance may be often seen in the cold weather months, especially in December and January in the form of pure snow, white powder on the surface of the country, but wherever it prevails the soil is sterile. It is not so abundant in the Goruckpore District as in the drier country to the west. It appears, that but little account is taken of this mineral production which it is affirmed might be yearly collected in large quantities, and which has been compared with the natron pits of Egypt. About 60 ounces of the substance gave 14 ounces of perfectly pure, and about 7 or 8 of colored crystals, these had free access to the air and at once began to effloresce. A carefully weighed ounce of the pure crystals left but 171 grains of pure snow, white powder incapable of further efflorescence, and if it should ever become an article of commerce, it is in this state it should be packed for shipment.

By a series of careful analyses the white efflorescence after purification was found to be composed as follows:—

		Crystals.	*As collected.*
*	Corbonate of soda, --- --- ---	38.71	22.50
*	Sulphate of soda, --- --- ---	3.36	7.09
*	Muriate of soda, --- --- ---	1.93	8.00
	Extractive, --- --- --- ---	0	6.81
	Insoluble, --- --- --- ---	0	37.86
	Water, --- --- --- ---	56.00	17.14
		100 00	100.00

It is extensively used by native washermen, and there may be many partsof the district where it is more plentiful than in others. At Mughur, in the months of March many maunds are carried away by them and used instead of soap, and it is employed also in the manufacture of country soap, &c. It may be purified on a large scale by piling up the impure earth as collected into cones of 6 to 10 feet high; in a few days, especially in March and April, the pure white efflorescence will be

* Equal to 20·34 per cent. of pure soda.

found collected on the mounds and may easily be scraped off. It ought never to be brought near a building being very destructive to masonry, and where it is once established it is very difficult to get rid of.

Whilst on the subject of alkaline products of the district it may not be out of place to mention, especially where so much forest yet remains, that the ashes of trees might possibly, with care, prove of some commercial value. From analysis of samples of crude potash obtained by water, and subsequent evaporation the results, as shown here, were obtained, they represent about 43½ per cent. of pure caustic alkalies. The ash from the bark of the Koossoom tree differs apparently from that of most vegetable productions by having an impure sort of lime in considerable proportion as its principal constituent.

Sub-carbonate of potash,	...	29.36
" " of soda,...	...	8.62
Sulphate of soda, ...	...	29.88
Water, ...	...	17.40
Earthy and extractive matters,	...	14.20
Iron, traces of, ...	...	0
Muriatic acid, trace of,...	...	0
Total,	...	99.46

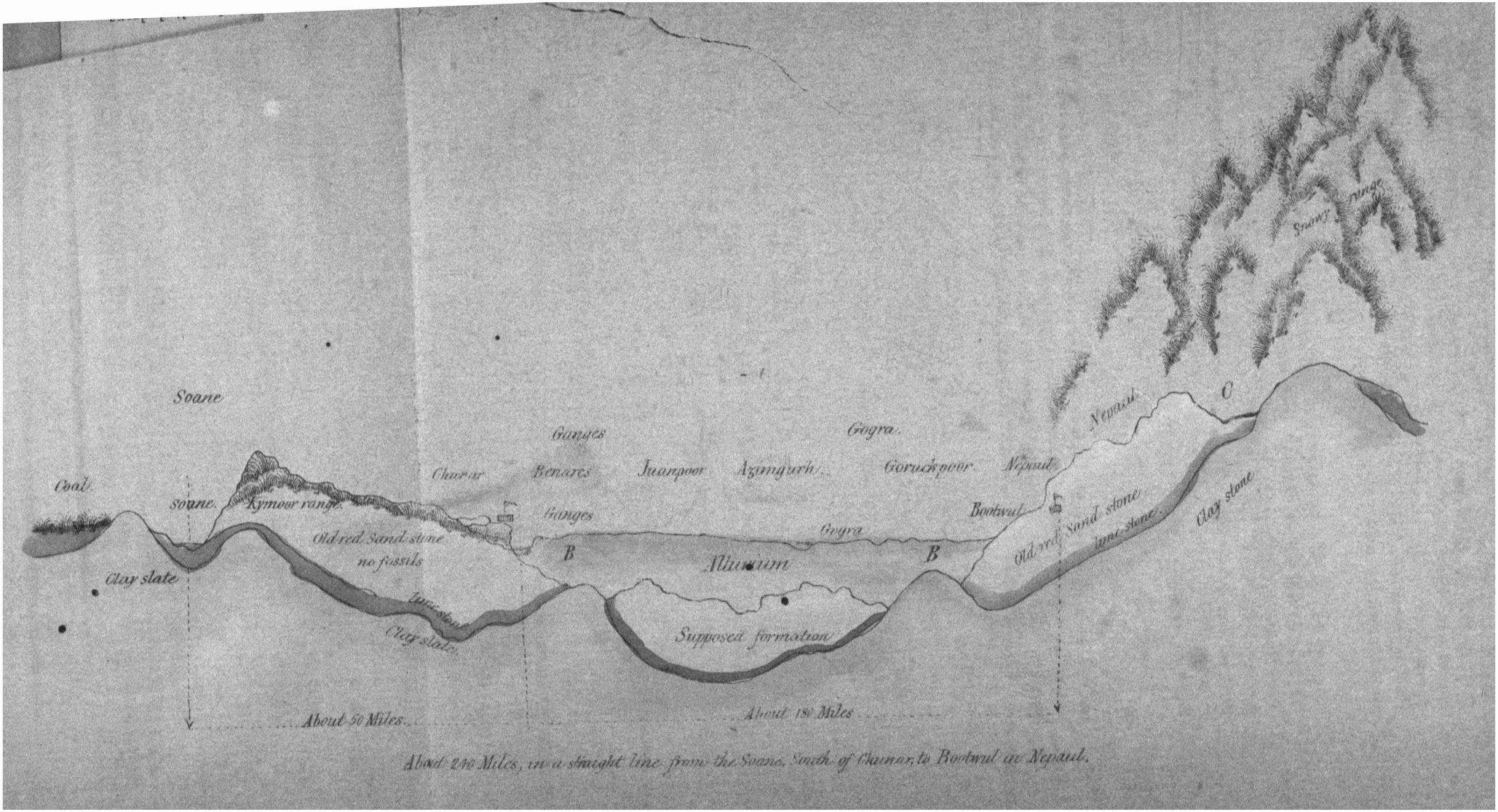
In some specimens of ash from this tree about 93 per cent. of an inferior kind of lime was obtained, it had the chemical properties of the earth and is often fraudulently substituted for shell lime. The Koossoom tree however must not be confounded with the plans called by the natives "Burrey," which produces the Koossoom flower the carthamus tinctorius yielding the beautiful pink dyes of the country.

Impure carbonate of lime,	...	93.75
" " of soda,	...	2.00
Portoxide of iron, ...	...	2.15
Water, ...	...	2.10
Total,	...	100.00

COAL.

The existence of any coal formation is scarcely, from the geological developments, to be expected in this district. As an alluvial basin deposited on rocks of which the Vindhyan range south of the Ganges forms the southern and the Nepal Hills, the northern boundary, the geological formation of the tract is not much in favor of its discovery. The same formation of old red sandstone is considered identical on both boundaries of the great alluvial deposit. In all this immense alluvium lying between Chunar, the most northern point of the Kymoor or Vindhyan range and Bootwul in Nepal, there is not the vestige of a rock in the general acceptation of that term apart from its geological meaning. From Chunar southwards the formation is the old red non-fossiliferous sandstone, below which is the mountain limestone, and clayslate, until it crosses the Soane, when clay slate of various tints prevails. It is possible that the same formation may be continued below the great alluvial deposit, in which case, coal may possibly exist in some such position as that marked C. in the accompanying diagram.

The possibility exists of course, that the limestone and other formations may protrude upwards at any point below the alluvium as at BB., but until a series of deep boring experiments can be carried out, the question of the coal measures being within any attainable distance must remain an unsolved problem.



About 240 Miles, in a straight line from the Soane, South of Chunar, to Bootwul in Nepaul.

ON GUM-CAOUTCHOUC, By G. OSBORNE, Esquire.

There is a substance closely resembling gutta pêrcha obtainable from the varieties of lactiferous plants in India.

Mudar.—The milky juice of the common Mudar plant (*asclepias gigantea*) growing wild all over the country, and the juice of the varieties of Indian Cacti will afford the gum in question. As my experiments have chiefly been made on the Mudar and prickly pear juice, the following results will apply to them only.

The juice may be collected at all times of the year, but it appears to be richer in the gum at particular seasons. Some plants may produce a finer variety than others, the juice of the common prickly pear yielded a fine satin-like caoutchouc, apparently superior in texture to that from the Mudar plant.

The composition of the milky juice of the Mudar I found in the month of September to be as follows :—

Pure white Gum-caoutchouc, --- ---	6.5	per cent.
Feculine matter, --- --- ---	8.0	„
Crystallizable salts* and extractive, ---	5.5	„
Water,† --- --- --- --- ---	80.0	„
	100.0	

It quickly hardens on exposure to the air; on immersion in hot water, it rapidly softens, it may then be extended or threaded out to any length, and it may be kneaded like dough. If pressed into moulds the impression remains sharp and durable. It will readily efface the marks of a bad pencil on paper, but the paper becomes soiled. These properties are not in any way impaired by long keeping.

If this substance could by any chemical process be made to possess insulating properties, it would become a very valuable acquisition for submarine electric telegraphic purposes. It is, however, necessary to note that the substance has, by competent authority been considered inapplicable in its unmanufactured state to that purpose. Other equally as high authorities are of opinion that it cannot yet be a substitute for the true gutta percha, but that its properties *may* be altered by chemical means.

The following are some of the principal properties of this gum-caoutchouc (for it possesses most, if not all the characteristics of a true caoutchouc) from which it may be concluded that they are not very dissimilar to those of the true gutta percha :—

1.—It will, in thin discs, float on water, but wetted on both sides it gently sinks.

2.—In warm water it softens immediately, if hotter it threads out very fine. It then receives impressions of scales or the like, retaining them when cold.

3.—It has no elasticity.

4.—It burns when dry like sealing-wax, emits black smoke, black melted drops falling down.

5.—Rubbed with flannel it gave electric signs with the electrophorus.

6.—In alcohol and æther it is partially soluble.

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* These salts are astringent and some peculiar acid was present insoluble in nitric acid.

† This had an odour resembling that of the sweet-wort breweries.

7.—In oil and spirits of turpentine it dissolves, one fluid ounce of the oil will take up about 30 grains of the gum, kneaded with oil of terpentine it makes a good cement.

8.—It is utterly insoluble in caustic potash. I boiled some of the caoutchouc for two hours in a strong solution without the slightest effect.

9.—Concentrated sulphuric acid partially chars or browns it, imparting a pinkish hue to the acid. Something thus seems to be dissolved out of the gum.

10.—Nitric acid does not char it, but dissolves some portion.

11.—Hydrochloric acid the same; but appears to render it more contractible when warm.

12.—Vegetable oils as the cocoanut dissolves it.

Like gutta percha it can be made to take impressions from a medal or dye from which perfect fac-similes of the original may be easily taken by means of the electrotype process.

Except, therefore, in the one instance of not possessing (in its pure state) insulating properties, it seems in all other to agree closely with the substance brought from Morgui and Assam as gutta percha. And it is by no means impossible that future chemical research may lead to some discovery by which this invaluable property may yet beimparted to the gum-caoutchouc of Northern India.

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